THE SUPERIOR CHILD IN PUBLIC EDUCATION

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-: P R E F A C E :-

The educational system in America has placed a great deal of emphasis and spent vast sums of money for the education and correction of the Inferior individuals. Scientific investigations and experiments have been made in the training of the unfortunate members of society. The Superior child is seldom discussed in educational literature. And yet, society has derived more benefit from the ingenuity of the Superior individual than harm from the Inferior.

The aim of this study, however incomplete, has been to make a brief survey of some phases of the field of education with special reference to the exceptionally endowed child.

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CHAPTER I.

Humanity presents a great mass of individuals each of whom bears the distinguishing characteristics of the species. But within the species there are variations. Each race is distinguished by specific features and traits. Disregarding the differences in color, each individual bears ear-marks sufficient to identify him with his own race. The Caucasian race is distributed over such a vast territory and is subjected to such a variety of environment that its physical features, while recognizable, are less uniform. Within this race may be observed national characteristics peculiar to one region and less noticeable in another. A typical example of nationalism is the Jew. In every country into which he has migrated he can readily be detected.

These group distinctions are so obvious that they require no further elaboration, consequently, I shall limit my discussion to variations in individual human beings. Naturalists, after ages of observation and study,

tell us that "Nature produces no duplicates". This truth is applicable, also, to the human species.

Individuals differ in many respects. Anatomists inform us that no two men are alike physically.[1] Each organ of the human anatomy is as variable as the complete organism. Occasionally, new muscles, not listed in text-books, are discovered. Studies on the brain reveal striking variations in the weight, shape, and structure of that organ. A print of the hand is sufficient evidence for the identification of any given individual.

Organs differ, not only anatomically but functionally.[2] This variation may be due to differences in the end-organ that receives the stimuli, in the connection between the end-organ and the brain, in the outgoing nerve connections, or in the motor organ. Some individuals are highly sensitive to external stimuli, while others respond only to strong or novel stimuli. Some react quickly while others are sluggish in reaction.

Mental variation,[3] altho commonly ignored, is the phenomenon which underlies most of the schoolroom problems. Some individuals learn best thru the use of their eyes, others thru the use of their ears, and still others thru the use of their muscles. Some have tenacious memories while others retain for future reference

only a few of their conscious experiences. Since the experiences of no two individuals are exactly alike, no two apperceptive masses are alike, hence, no two apperceptions or interpretations.

Variation, prevalent as it is, does not occur spontaneously[4] - for every change there is a cause. All causes of human variation may be divided into two classes,- hereditary and environmental. Heredity includes the factors that influence the individual thru the structure and composition of the germ plasm. The fundamental law of Heredity is that "like begets like". The farmer who plants corn expects, because of his observation of this fact, to harvest corn. More than that, if he plants Yellow Dent corn, he expects to harvest Yellow Dent. If the parent plant or animal is a superior individual, he expects the offspring to be superior; if inferior, he expects the offspring to be inferior.

Consistancy of heredity is equally true in the human family. The parent who is tall, dark-complexioned, mentally superior, or possesses any other specific trait, transmits that characteristic to his off-spring. These persistant tendencies Davenport calls Hereditary Traits.[5] They are elementary tendencies or unit characters

transmitted from parent to off-spring thru the germ plasm.

In an organism so complex as the human being the number of unit characters is great, consequently, the combination and degree or intensity of traits in one individual is likely to be duplicated in but few others. This probability is decreased in a geometric ratio by the participation in transmission of two lines of heredity. The child inherits not the traits of one parent but of two, each of which represents the union of two other lines, composed in their turn, of still other uniting lines of heredity.

The importance of this abundant variation is appreciated by the scientific breeder who recognizes in each deviation from the type of plant or animal a possibility for the perpetuation of a new variety. For example, Luther Burbank[6] raises plants by the thousands in order that he might find and propagate specimens with a tendency in some desirable direction. If heredity did not present the phenomenon of variation, no progress or evolution could be produced; each species would transmit the same identical characters to each succeeding generation without novel or unique individuals. Moreover,

if variation were not balanced and, in a measure, counteracted by perpetuity, the deviations even in the direction of progress could not be preserved; one might sow wheat and reap oats, or set turkey eggs and hatch goslings.

One of the laws governing variation and perpetuity is the Mendelian Law,[7] discovered by experimentation with hybrid peas. While the human species it not subjected to regulated conditions and selective breeding, Davenport observes that the transmission of human hereditary traits conforms to the Mendelian Law. Whether this is true or not, the fact still remains that in family lines where a trait is absent and is not introduced by intermarriage with a line in which it is present, it does not occur in any succeeding generation; and in lines in which a given character is present, unless the trait is eliminated by cross-breeding with lines that lack the unit, each succeeding generation inherits the character.[8] Davenport's[9] explanation for the cases in which a trait seems to appear spontaneously is that the character was present in latent form and when the inhibiting influence of some opposite character was released the latent one appeared. An illustration of

latent characters is feeble-mindedness. Dr. Goddard's study of the "Kallikak Family", and other scientific research work in this field, altho not conclusive, corroborate Dr. Davenport's theory.

Another law governing the transmission of inate characteristics is Galton's Law of Regression.[10] Briefly stated it is: All variations tend to revert back to the type. This is only one of nature's protections against too great variations.

The other class of causes of variation,- environment, includes all external influences that affect the development of the inherited qualities of the individual. The category of environment consists of all the physical surroundings,- food, shelter, climate, location, etc.-, the economic surroundings,- scarcity of food, scarcity and conditions of labor, supply and demand of various commodities, purchasing value of the dollar, etc.-, and the social surroundings,- the condition of home life, the associates, the educational advantages, the church relationships, etc. "Whether one makes locks or picks them is much influenced by ones environment, but the capacity to do either is a matter of native endowment".[11] Dating from the time of conception, environmental influences are often mistaken for hereditary. The environment practically

determines which inherited capacity shall develop and to what extent, it cannot create capacity.

Mental endowment is transmitted according to the Mendelian Law. The nature of the transmission of mentallity,- whether it is a unit-character or whether it is only a tendency,- is an open question among scientists; nevertheless the fact remains that individuals vary in original endowment. This mental variation may be in quantity or quality.

In quantity, individuals vary from almost an absence of intelligence to the genius. At the lower extreme we find the idiot[12] who is really mentally defective. He can never become independent, he cannot preserve his own life; he never exceeds the mental maturity of an average child of two years. Next is the imbecile who is endowed with the capacity to develop to the mental maturity of a normal three- to seven-year-old child. He is capable of performing the most elementary tasks only under supervision. The third degree of mentallity is found in the moron. He is capable of almost every form of manual routine labor but cannot exercise judgment. He is the dullard in school, never exceeding the mental maturity of twelve years and seldom passing above the

sixth grade in the regular school work. These three groups are known to psychologist as mentally inferior. They are subnormal - atypical.

The average or mediocre[13] group includes the great mass of common people who are neither leaders nor laggards. This group preserves the equilibrium between the radicals in the superior and the conservatives in the inferior groups. While they do not initiate new movements or inventions, they are the ones who maintain a custom or institution once it is established. Upon them depends the stability of a civilization.

Above the mediocre are the Superior[14] and the Very Superior Groups. They are as truly atypical as the Inferior groups. They constitute the leaders, the inventors, and the initiators. In school these two Superior groups include the individuals who are capable of accomplishments two or more years in advance of their chronological ages. The term Superior does not apply to the pseudo-superior people so severely denounced by Schwarz.

Variation in quality of mental endowment[15] is the basis for the common occurrence of difference in type of mentality. One type of individual we call balanced. Such minds function in all the major mental activities

with approximately equal efficiency. The degree of efficiency presented by the balanced individual may correspond to any one of the groups mentioned above,- Inferior, Mediocre, or Superior. But the endowment is symmetrical with no marked deficiency or strength in specific lines.

Specific endowment[15] occurs in individuals who are brilliant in some phases of mental activity and dull in others. An example of this type is the mathematical prodigy, or the literary pupil who cannot learn arithmetic.

In the school room Superior mentality manifests itself, firstly, in ability to grasp meaning. The meaning may be gained from written symbols, spoken symbols, or concrete situations. While some Superior individuals are apt in the interpretation of one type of stimulus, the balanced Superior individual is efficient in the interpretation of all three.

Secondly, Superior intellect exhibits original ideas. As the ordinary woman makes a dress to fit a pattern while the expert deviates from the pattern enough to make it fit the individual, so in school the ordinary child does as the teacher says and nothing more while the Superior child uses directions as a suggestive guide for his own ideas.

Thirdly, a mass of Superior interpretations and original ideas, unexpressed, would never be discovered. The most common form of school-room expression is language, either written or oral. The pupil who produces exceptional compositions or class discussions is unquestionably endowed with Superior ability to express ideas. Training, tho it may improve his efficiency in this art, can never provide capacity omitted by heredity.

The conduct of an individual furnishes a fairly reliable index to the quality of his ideas. This activity may assume the form of music, art, invention, treatment of one's associates, etc. - it is a means of expressing the mental content of its executor. Superior conduct is composed of three types of activity. The first type is habitual. The nervous mechanism must be so delicately adjusted that common situations are adequately met without conscious direction. Relieved of the responsibility of the routine reactions, consciousness is free to perform a second kind of activity which is involved in the reaction to novel situations. Superior mentality, free from conscious discharge of routine duty, finds leisure time and energy after all novel conditions have been successfully met. This surplus is utilized in a third type of activity,-

creation of more new situations for the expression of a surplus of ideas.

But ability to translate ideas into language or conduct, tho it be of superior quality, does not insure school-room Superiority. Lastly, the individual must have the energy and will power to utilize a large amount of his ability. Ideas and ability without determination to execute them are of no value; conversely, determination without ideas and ability is also valueless.

Consequently, Superiority, in the light of school standards, consists in grasp of meaning, originality of ideas, ability to express ideas, and energy to activate these abilties.

These standards of Superiority may be applied, also, to all the non-scholastic activities. Firstly, the individual must be able to interpret his environment. He must realize the significance of his physical surroundings. Most individuals are conscious of these factors but only the Superior one knows their value to him. For example, he sees in these surroundings the economic situation and he measures his own ability to earn a living in terms of conditions as they are. If he is not satisfied with his ability to meet the situation, he has

the capacity to increase his efficiency and to change the situation. In like manner he has the ability to improve the social institutions with which he becomes dissatisfied.

Secondly, ability to evaluate one's environment is accompanied in the Superior individual by the capacity to produce ideas that will tend to improve his conditions physically, economically, and socially. Obstacles in the environment are a challenge to his originality.

Thirdly, social Superiority implies the ability to express ideas of improvement, especially, in terms of conduct. On the one hand the individual must adjust himself to the environment physically, economically and socially. On the other hand the individual must adjust the environment to his needs or desires. If the winter is cold, he can produce artificial heat; if the day is shorter than he desires, he can extend it by means of artificial light; if his soil no longer produces enough grain to support his family, he can improve his methods of cultivation and fertilization; if public opinion does not conform to his desires, he can educate his fellowmen to the desired opinion. In short, the Superior

man, while he is readily adjustable to changes of environment, is not a slave to them. If his environment is not satisfactory, he can create one that is at least more pleasant.

And, finally, ability without determination and energy is socially valueless. Back of these Superior abilities must be an impelling force that urges the possessor to exercise his ingenuity in the execution of his ideas,- the utilization of his Superior endowment.

Notes for Chapter I.

1. Bolton, Principles of Education, 303.
2. " " " " 305
3. " " " " 306,
3a. Terman, Measurements of Intelligence, Chapter I.
4. Galton, Natural Inheritance, 18, 51.
5. Davenport, Heredity in its Relation to Eugenics, 27 - 180.
6. Harwood, New Creations in Plant Life.
7. Castle, Heredity, 33; Davenport, Heredity in its Relation to Eugenics, 18; Walter, Genetics, 123.

8. Goddard, The Kallikak Family; Goddard, Feeblemindedness, Its Causes and Consequences, 548-57.

9. Davenport, Heredity in relation to Eugenics 16; Galton, Natural Inheritance, 11.

10. Castle, Genetics and Eugenics, 216; Walter, Genetics, 98.

11. Bolton, Principles of Education, 195.

12. Tredgold, Mental Deficiency, 8; N.J.Training School for feebleminded Boys and Girls, Twenty Second An. Report 1910, p.136-137. and Terman, Measurement of Intelligence, 79-94.

13. Terman, The Measure of Intelligence, 94.

14. " " " " " 12,95.

15. Healy, Individual Delinquent, 453,463; Tredgold, Mental Deficiency, 302-312.

CHAPTER II.

Mental endowment is one of the human qualities that cannot be measured objectively by arithmetical calculations[1] as the carpenter measures his board. The most satisfactory method yet devised for measuring such abstract quantities is that of relative position. Such terms as "medium size", "superior quality" and "exceptional value", are in common usage among the laity to describe, in terms of relative position or amount, various qualities. These expressions convey a meaning similar to that conveyed by the psychologist when he speaks of degrees of mentality as being Inferior, Mediocre, or Superior.

From the study of the mental development of 1000 individuals selected at random, Dr. Terman[2] concludes that this character distributes itself according to the Gaussian curve of probability. His data show that approximately 6% of the individuals possess a very Inferior degree of intelligence; 14% Inferior, 60% Average, 14% Superior, and 6% Very Superior. There are as many cases of Superiority as Inferiority, with a majority of Mediocre

or typical individuals.

Any group of people selected at random when measured for any given ability tends to distribute itself according to this bell-shaped curve. Studies of various phases of school activities furnish data to support this statement. Dr. Keyes'[3] statistics on the arrests and accellerates in the school children of Hartford show 24% arrested one or more years, 46% normal age, 30% accellerated one or more years. This distribution is practically symmetrical with 6% more children accellerated than retarded. Supt. Kent[4] reports that 23.2% of the Lawrence children are retarded two or more years and 7% accellerated two or more years. Ayres'[5] study of school children in New York City reveals 40.7% who cannot complete under present conditions and standards a regular year's work in a year's time, 54.2% who are able to complete exactly a year's work, and 5.1% who are able to complete more than a year's work. The asymmetry of these distributions will be discussed in a later chapter.

The results of educational tests reveal a similar distribution. The Curtis Test in addition given in Salt Lake City,[6] shows that the ability of all the children in

each - the V, VI, VII and VIII-grade approximates the Gaussian curve with a skew indicating more Superior than Inferior pupils in each grade. The data from the Stone Reasoning tests given in Butte Montana,[7] and from Ayres' Penmanship tests in Cleveland,[8] for both speed and quality present the same conditions. The results from the Ayres Spelling tests given in Cleveland show an asymetry indicative of an excess of Inferior pupils. These distributions will, also, be discussed later. They are sufficient evidence of the general distribution of ability.

Statistics showing the distribution of Superior ability in other social organizations are not available. However, observation is sufficient to convince one that the majority of members of any institution,- religious, civic or industrial - are willing workers if the leadership is enthusiastic and efficient. Then there is a small percentage who are laggards or dead-weights; and there is an equal percentage who furnish the enthusiasm and initiative of leadership. In any unselected group of individuals thepercentage of Superiority is equivalent to that of Inferiority.

Foot Notes for Chapter II.

1. Thorndike, Mental and Social Measurements, 24.
2. Terman, Measurements of Intelligence, 12, 74, 78, 95.
3. Keyes, Progress thru the Grades of City Schools, 54.
4. Report, Lawrence Public Schools 1917-18, 29.
5. Ayers, Laggards in our Schools, 81.
6. Cubberley, School Organization and Administration, 176.
7. Strayer, Some Problems in City School Administration, 181.
8. Judd, Measurement and Work of Public Schools, 67.

CHAPTER III.

The significance of the Superior endowment factor in society can be more adequately realized by a brief review of a few concrete examples.

Historically, who can estimate the value of Cavour in the unification of Italy, of Alfred the Great in the nationalization of England, or of Washington in the organization of America? The service rendered by Gladstone to the national policy and reform of England is immeasurable. The training of each of these men unquestionably influenced his efficiency, and yet training is not responsible for the capacity. As evidence of the independence of Superiority from opportunity for training, let us consider Abraham Lincoln whose youth was spent in the back-woods of Illinois and whose school advantages were very meager. To the average man, the obstacles he encountered in his development would have been insurmountable. But the initiative of a Lincoln produced an inestimable character.

As in civic affairs, so in industry, a number of exceptional men appear as the nucleus of progress. The

entire commercial world owes gratitude to the ingenuity of a Fulton, every locality of the world remained in isolation until the inventive skill of a Morse liberated it, the extensive manufacture of cotton textiles is dependent upon the mind of an Ely Whitney, and America could not feed the world in the present crisis without the initiative of a McCormick.

In the field of science the same condition exists. Galileo, not because of his opportunities but in spite of a lack of them, discovered laws which have since become the servants of man. Darwin, persecuted for his departure from traditional beliefs, laid the foundation for the improvement of plants and animals. Goodyear, thru persistant effort conquered the empire of rubber. The originality and untiring effort of Pasteur, Reed, Lazear and Jenner, have protected the human race from the ravages of disease-producing bacteria.

Likewise, in Art, Music and Literature, the average person gets a great deal of enjoyment from the master productions but a minority can interpret the meaning of them, and a very small percentage can produce masterpieces. A bird's-eye view of the significance of these masters

in the formation of world ideals can be had by the mention of such artists as Leonardo da Vinci, Raphael, Michael Angelo, amd Millet; such composers as Mozart, Bethoven, and Chopin; and such authors as Shakespeare, Browning, Tennyson, Ruskin, and Emerson.

In each of these and other fields of activity scores of Superior characters could be mentioned. These few are sufficient to indicate the inestimable value of Superior endowment in the history of civilizatinn.

Superior individuals and their influences are not limited to the past; they are on the scenes of action today. They must be observed at so close a range that their real value cannot yet be seen; however, the fact of their Superiority can be realized.

Among the politically Superior men are found: Senator Underwood who is responsible for many reforms, especially the Underwood Tariff Bill; Senator Root who, as Secretary of War formulated a government for the Phillipine Islands and as Secretary of State secured the confidence of the Latin-American States; Chief-Justice White whose masterly decisions have made possible much new legislation; Ex-President Roosevelt whose name is

always associated with Civil Service Reform, the Spanish-American War, the Progressive Party, and other important political affairs; and President Wilson whose masterly ability has placed him among the leaders in the world crisis.

In industry no one can question the Superiority of Henry Ford in the manufacture of the automobile; of Andrew Carnegie, the Iron King and a great public benefactor; of John D. Rockefeller, of the Standard Oil Company, who has endowed educational and medical research institutes; John Wanamaker, the originator of the modern department store; of George W. Goethals, who supervised the digging of the Panama Canal; of James J. Hill, the owner of the Great Northern Railroad; of Orville Wright, inventor of the aeroplane; and of many others.

Superiority in the field of Applied Science immediately suggests Luther Burbank, the plant wizard; Thomas A. Edison the inventor; Alexander G. Bell, the inventor and promotor of the telephone; Dr. John B. Murphy who has simplified surgical operations so much that ordinary surgeons can perform an operation for appendicitis and for tuberculosis.

Educational work in the twentieth century reveals its portion of Superiority. C. W. Eliot, ex-President of Harvard, is the father of the "elective system" in education. He was the first administrator to overthrow the traditional uniform classical course. Professor Judd as an administrator, Professor Thorndike as a statistician, Professor Cubberley as an educational surveyor, Dr.Goddard as a psychologist particularly interested in the training of Inferior children, each exhibits exceptional ability and initiative.

Social reform displays its array of Superior individuals. The accomplishments of Judge Lindsey of Denver are marvelous. Mrs. Booth thru the Volunteer Prison League, Miss Jane Addams thru the Hull House Settlement, John H. Vincent thru the Chautauqua platform, exemplify Superior ideals re-enforced by an impelling force that results in execution.

In connection with the various religious organizations all the leaders are Superior. A few striking examples are: John R. Mott, organizor of the World Student Christian Federation and an important leader in the International Y.M.C.A. activities; Frances E. Clark, founder

of the Christian Endeavor Society; and Hirsch, a Jewish leader of national reputation for liberality in religious ideas.

Literature, Music, and Art must stand the test of time, consequently, it is impossible to evaluate contemporary composers. Indeed, time reveals more fully the importance of any individual.

Every generation has produced its exceptionally-endowed individuals; the present possesses them; therefore, we may expect that every future generation will furnish its quota. Since the progress of civilization is dependent upon these Superior minds, the progress of the future will be as rapid as these intellects lead the way into new methods and activities. "Moderate ability can follow, or imitate, but genius must show the way".

CHAPTER IV.

1. The Discovery or Diagnosis of Superior Endowment.

These potentially Superior individuals - with exceptional ability in interpretation of environment, in originality of new ideas, in executing the ideas, and with initiative to utilize the ability - these individuals responsible for the future progress of civilization constitute approximately one fifth of the children enrolled in our public schools.

What is the duty of the educational system with reference to Superior endowment? The first duty is to discover it, the second to develop it, and the third to emit the finished product into activities in which it can render most service. Such a program is worthy of the cooperation of every man and woman connected with the educational system.

The discovery of Superior Endowment is, in itself, a problem that challenges,and in a measure, baffles the ingenuity of scores of exceptional psychologists. The measurement of mentality, as has been previously stated, is very difficult. The difficulty is due to the

nature of both the measuring rod and the thing to be measured. On the one hand standards must be independent of the opinion of examiner, they must be objective enough that any other examiner can apply the same standards with the same meaning. On the other hand mentality is so intangible that it cannot be treated in a purely objective way. Since the visible manifestations of the mind must be interpreted by the examiner, the interpretation cannot fail to be colored by the opinion of the examiner. Another obstacle to the measurement of original endowment is the intimate relation of this quality to the training or development of it.

Men have worked for several generations in attempts to devise a method of measuring intelligence. At first these efforts were directed toward the separation of mental functions such as memory, reasoning, etc.[1] But the results were not satisfactory. Among these experimentors was Dr. Binet, who, after years of fruitless labor, abandoned the hope of measuring the isolated functions and assumed the task of measuring intelligence as a whole. From this point of departure have come, in a single decade, scores of scales and tests, some valuable

and other valueless.

The most important of these general intelligence tests now in use are worthy of consideration at this time. The first is the 1911 revision of the Binet-Simon Scale[2] of Intelligence. It comprises a collection of tests which have been standardized according to the age of normal children regardless of training. It tests the subjects' memory span, both auditory and visual, his analytic and synthetic abilities, his flow of ideation, his orientation with reference to his own body and with reference to time, his ability to interpret auditory and visual images, and his number sense. The tests are arranged into groups of five each for the ages of three to twelve inclusive, five for age fifteen, and five for adults. This scale has been severely criticised because of the dependence of its results upon liguistic ability. Only a small proportion of the list requires motor response. Other revisions, such as the Goddard[3] and the Stanford[4] arranged by Dr. Terman, are the results of an attempt to eliminate some of these criticisms.

The Yerkes Point Scale[5] is similar to the Binet-Simon Scale, including many of the same tests. The principal difference lies in the arrangement and scoring.

The tests are grouped according to facility and similarity of administration rather than according to age. Each test has a definite value and, on being passed satisfactorily, adds its value to the total score which is finally located on the standard graph showing the mental age that corresponds to that particular performance score. This scale also is criticised because of its overemphasis of language ability to the exclusion of motor skill.

A combination of language facility and motor skill is tested by the Healy Tests[6] for Practical Mental Classification. They are a collection of puzzles, direction and educational tests.

The series of tests used in the Immigration Office at Ellis Island is primarily made up of performance tests. The tests were devised by Dr. Knox[7] to render justice to the alien who altho intelligent, has not had educational advantages. The author considers them valuable in his work with immigrants, but they have not, as yet, been sufficiently used with school children to furnish standards of efficiency with which the performance of American children can be compared. Consequently this series must be excluded from the list available for school-room diagnosis.

The Goddard or Seguin Form Board[8] Test is another

device for the measurement of motor ability. The ten geometric blocks to be placed, each into its own recess, as quickly as possible constitute the test for judgment, attention, and motor co-ordination. While only one subject can be tested at a time, the entire process requires less than five minutes for each pupil.

Realizing that these scales do not test thoroughly the motor ability, Parteus has arranged a Motor-Intellectual Series[9] for measuring the child's ability to act. This scale comprises eleven maze puzzles requiring strict attention, foresight, prudence and motor innervation. The administration of this test is simple, requiring only a few minutes for the entire series.

The Pintner-Patterson Scale of Performance Tests[10] is the result of an attempt to supply the demand for a standard test which can be used in cases where lack of language facility is a marked hindrance to the results of scale involving oral response. In this scale are included the Knox Cube, the Form Board, and other similar tests.

The Knox Cube[11] test as arranged by Pintner and Patterson is a test of motor imagery and memory. Four cubes are placed in line about two inches apart, the examiner touches the blocks in various orders and the

subject is required to imitate the performance in exactly the same order.

The Trabue Language Scale[12] composed of standardized sentences in which are blanks to be filled by the subject, are significant because of the simplicity in their administration. Dr. Trabue has prepared Scales B, C, D, and E for which he allows seven minutes each. They may be given on different days and the mean of the scores be used as the final score. Whereas, the administration of the Binet-Simon Scale and the Yerkes Point Scale require forty-five minutes each, these Scales require only seven minutes each; and whereas, the first two can accommodate only one subject at a time, with the last the examiner can test an entire room at once. Of their comparative reliability I shall speak later.

Numerous other attempts, at devising tests and scales, have been made with varying degrees of success. Among these tests may be included the series by Dr. Helen Wooley[13] and the group used by the New York Board of Charities.[14]

The purely motor tests may be criticised as severely as those which fail to test motor performance. For in the school room children are judged by their language ability more than by their motor ability, altho society judges the

mature individual by what he is able to do.

The next phase of mental testing to be considered is the reliability of the various tests. But before an adequate discussion of this subject can be attempted the technical terms involved must be defined. One of these terms is Mental Age.[15] The child, when asked how old he is, invariably replies in terms of the number of years that have elapsed since his birth; he gives his chronological age. In school, however, a year of work does not mean to each individual the same as to each other individual. Psychologists have found that, likewise, a year of chronological age may not mean a uniform mental development; for example, of two children whose chronological age is ten, one may possess the mental maturity of the average child of five and the other a mental maturity equivalent to that of the average child of fifteen- the former has a mental age of five and the latter of fifteen.

The Intelligence Quotient (I.Q.)[16] of Terman and the Coefficient of Intelligence[17] of Yerkes is the ratio of the Mental age to the Chronological age. In the illustration given above the first child's I.Q. is .50 and the second's is 1.50.

While the Binet-Simon Test has been severely

criticised, it has been used more extensively than any other one test. In studies of the results of this test, the Chronological ages of 1277 normal children have been compared with their Binet Mental Age.[18] The figures show that approximately 25% of the Mental Ages were below the Chronological Age, 50% at the Chronological Age, and 25% above. Dr. Healy,[19] after extended experimentation asserts that this scale does not tell the whole story; which is probably true.

The Yerkes Point Scale was standardized by application of the scale to 571 abnormal children, to whom the Binet-Simon Tests were also given.[20] In only eight cases did the results vary as much as two years. The Stanford Revision of the Binet-Simon Scale, because of finer adjustments, correlates more closely with the Point Scale for the ages below six and above ten. The Yerkes Point scale is more easily administered than the B.-S. scale.

Healy's tests for Practical Mental classification as standardized by Dr. Clara Schmitt[21] form a scale arranged according to school grade. The classification is based upon the quality of the reaction, giving prominance to errors,/a plan of proceedure in contrast to the emphasis in the B.-S. It is a qualitative scale for children from the

kindergarten to the fifth grade, inclusive. This series of tests was devised, not to displace but to supplement the Binet-Simon Tests.

The Form Board is used in a variety of ways,- by Dr. Goddard[22] of Vineland N.J., to determine the educability of the child, by Dr. Sylvester to determine both educability and error in judgment, Whipple[23] to test sustained attention and by Witmer[24] in his clinic at the University of Pennsylvania. This test has been quite well standardized by Sylvester for the ages six to twelve inclusive[25]. The records for each age approximates the Gaussian Curve and each succeeding age is represented by an increase in the median speed.

The Porteus tests were not devised as a substitute for the other tests but primarily as a supplement to the B.-S. Scale. The Pearson Coefficient of Correlation[26] with that test[27] is .707. This scale tends to exaggerate the extremely Inferior and the extremely Superior cases. However, in 75% of 120 cases the Mental Ages resulting from the two scales differed less than 1 year.[28] The principal merits of this scale are that it is simple and it furnishes an insight into the temperament of the subject.

The Pintner-Patterson Scale of Performance Tests[29]

is arranged for scoring similar to the Yerkes Point scale, the year system of the Binet-Simon Test, and the percentile method which is commonly used in physical measurements. Each of these scores is different for every individual. The authors have not determined which is the best method. The Performance Scale has not been compared with the other standardized tests extensively enough to determine its exact value.

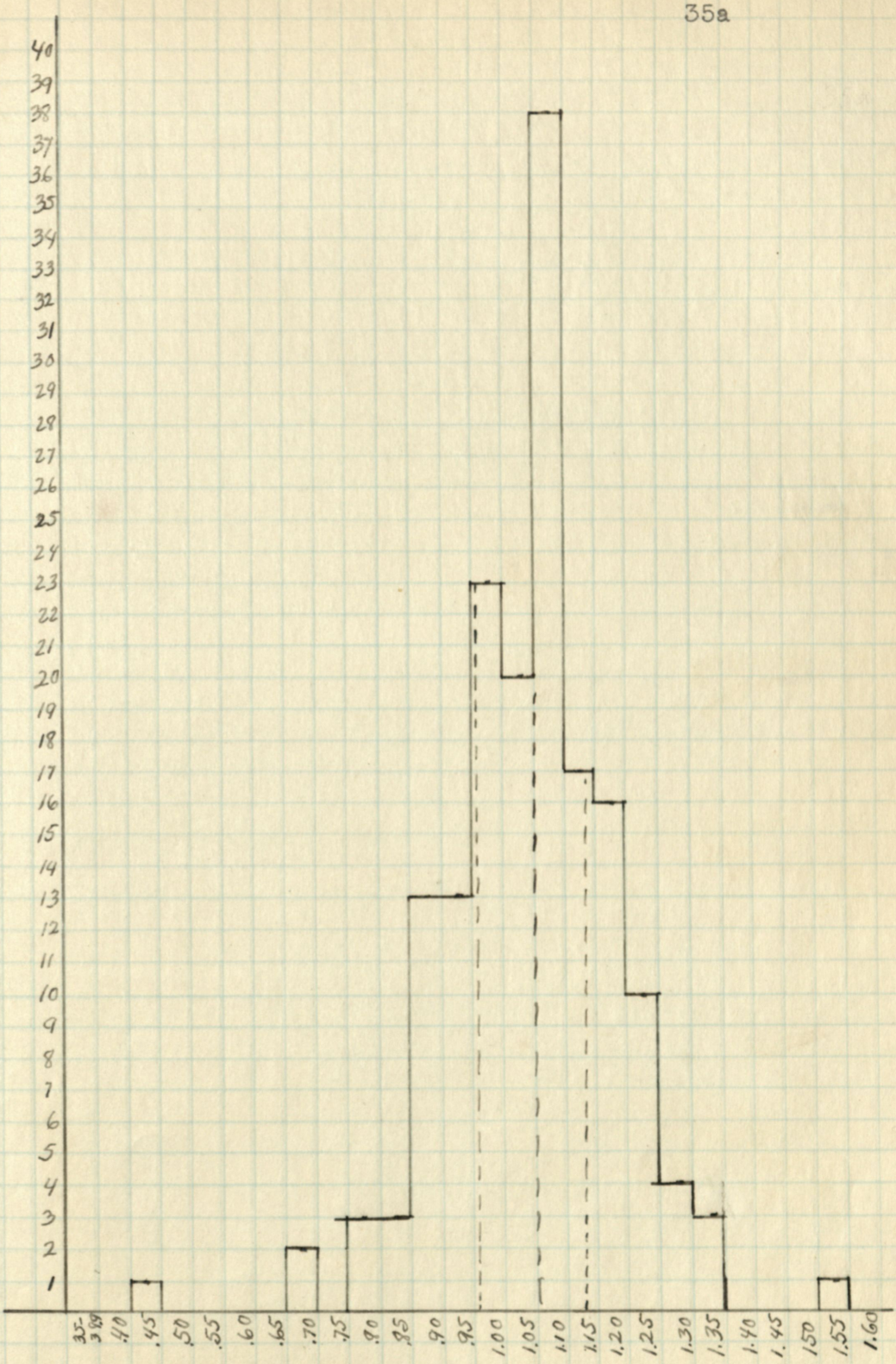
The Knox Cube Series[30] as arranged by Pintner and Patterson shows that from age 6 to 13 inclusive, the distribution in each age assumes the rough outline of the Gaussian curve. But the median performance for each age is not so standardized that the individual can be definitely located. This situation is due in part to the limited number of cases included in the tables and also to the limited number of possible performances in the series.

The Trabue Completion series has been used by a number of experimenters. Dr. Trabue expected to obtain final standardized results from the survey made in St Paul Minnesota, in 1917-18. The report of this survey was not yet available when this article was sent to press.

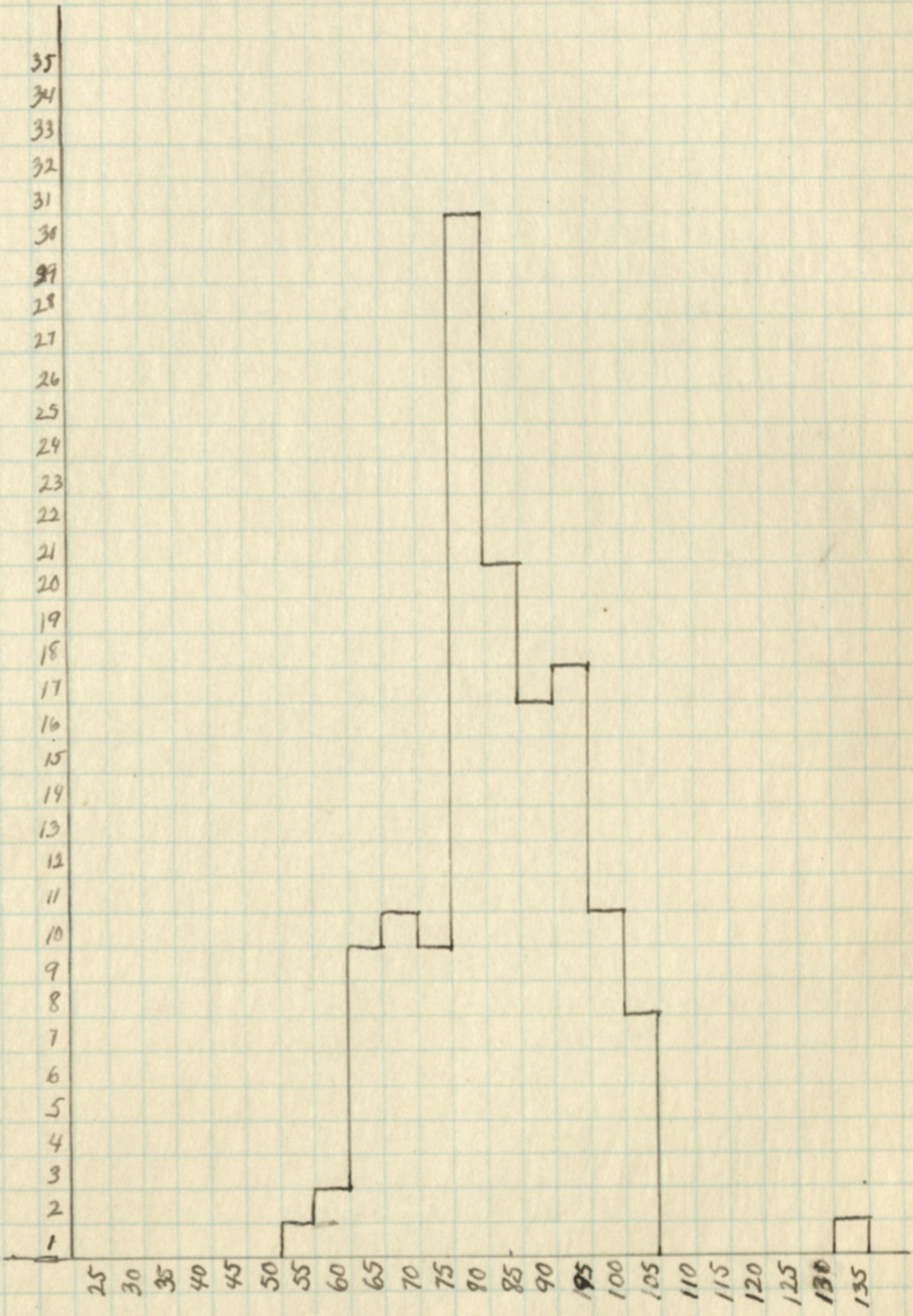
On further evidence of the validity of the tests,

I present the results of a study of school children of Lawrence. The results of the Binet-Simon tests, given by Miss Elizabeth B. Lovejoy, in 1916-17 to 166 children principally from age nine to twelve inclusive chosen without regard for mental ability, produce Intelligence Quotients as represented by graph I. The general outline of the distribution is symmetrical. The median falls at 1.103 with 50% of the cases between 1.015 and 1.188. Each of these three points is unusually high but the relative positions of the individual measures conforms to the theory that the distribution of mentality forms a Gaussian curve.

One year later the Form Board and the Knox Cube tests as arranged by Pintner and Patterson[31] were given by the writer to 130 of the same individuals. Graph II shows the distribution of the Form Board Quotients. The 25 percentile mark of .79, the median of .865, and the 75 percentile of .96 place the entire group unusually low; but as in the case of the B.-S. quotients, the general symmetry of the group is maintained. The time distribution used as a basis for the F.B. Quotients represented by Graph II are given in Table I. The median time of 16 seconds for age 10 is the same as the one given by Pintner and Patterson;[32] but the medians for ages 11, 12 and 13,



I B.-S. Quotients



II F.B. Quotients

TABLE I.

FORM BOARD TIME.

Age	10	11	12	13 and above	Total
Time					
13	1	4	4		9
14	3	7	3	3	16
15	10	7	9	3	29
16	10	8	1	2	21
17	7	7	3	1	18
18	9	2	2	2	15
19	5	3	3		11
20	1	4		1	6
21	2	2			4
22		1			1
Total	48	45	25	12	130

TABLE II.

KNOX CUBE PERFORMANCE

Age Lines Correct	10	11	12	13 and above	Total
3			1		1
4	1				1
5	1			4	5
6	3	2	2	1	8
7	7	11	3		21
8	16	10	7	4	37
9	11	12	11	2	36
10	7	4	1	1	13
11	1	4			5
12		1			1
Total	47	44	25	12	128

are higher - these pupils are one second slower than the ones of the corresponding age in the standardized table. The Knox Cube performances are given in table II. The median for each age is one unit higher than the corresponding median given by Pintner and Patterson.[33]

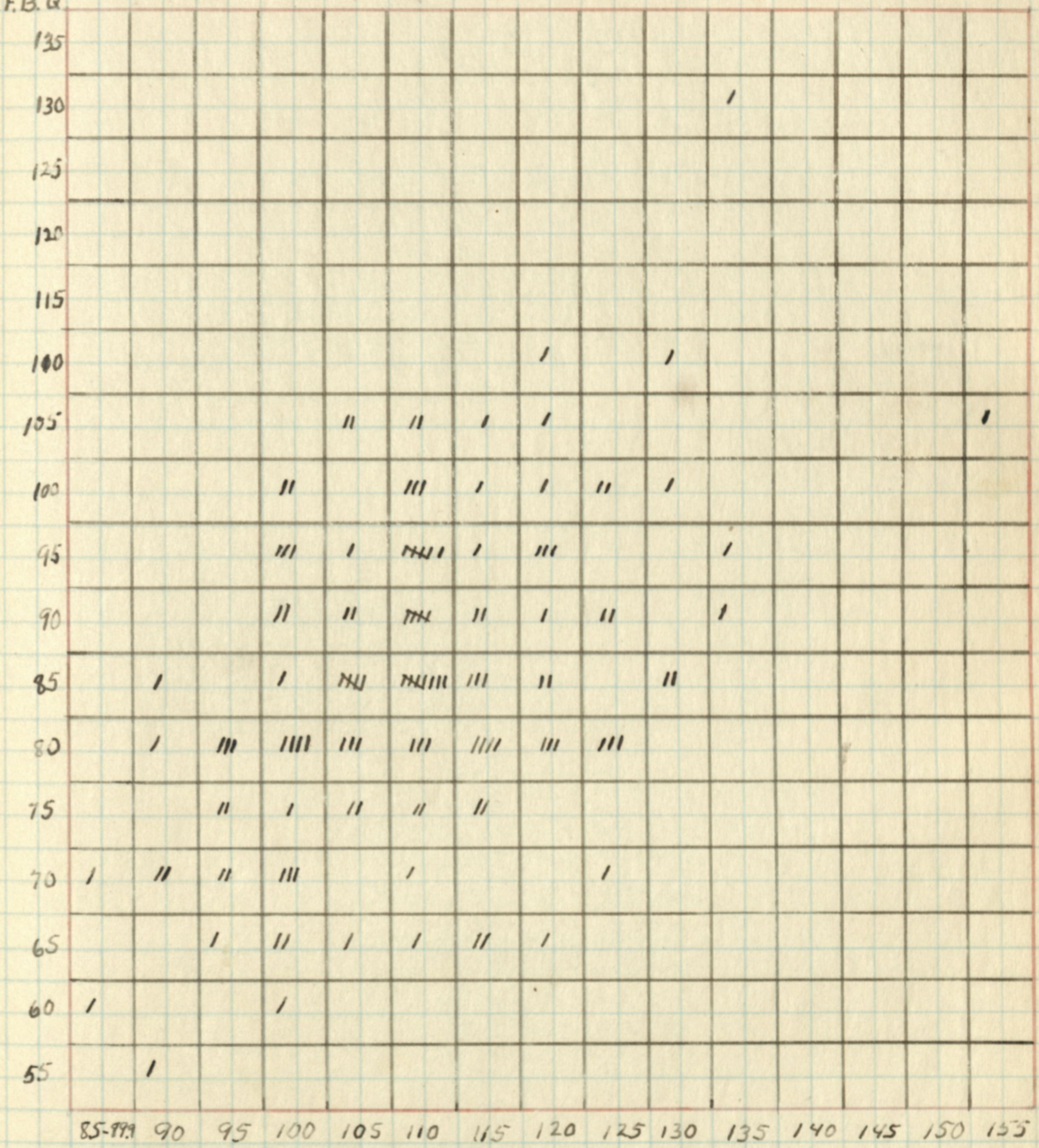
The correlation between the B.-S. results and the F. B. results is shown for 126 individuals by graph III. The Pearson Coefficient[34] of .45 indicates rather a close relationship between two tests reputed to deal with distinct mental functions.

The B.-S. Quotients of all three ages are correlated with the Knox Cube performances in graph IV with a coefficient of .29. Graph VI shows a coefficient of .42 for age 12 and above, graph VII a coefficient of .12 for age 11, and graph VIII a coefficient of .30 for age 10.

The relationship existing between the F.B.Quotient and the Knox Cube performance for the three ages is presented by graph V. with .13 as a coefficient of correlation. The correlation between these two performance scales is much lower than the correlation between either of them and the B.-S. Quotient.

As a comparison of these three mental tests with school work, I have correlated the teachers' semester marks on file in the superintendent's office, in Geography,

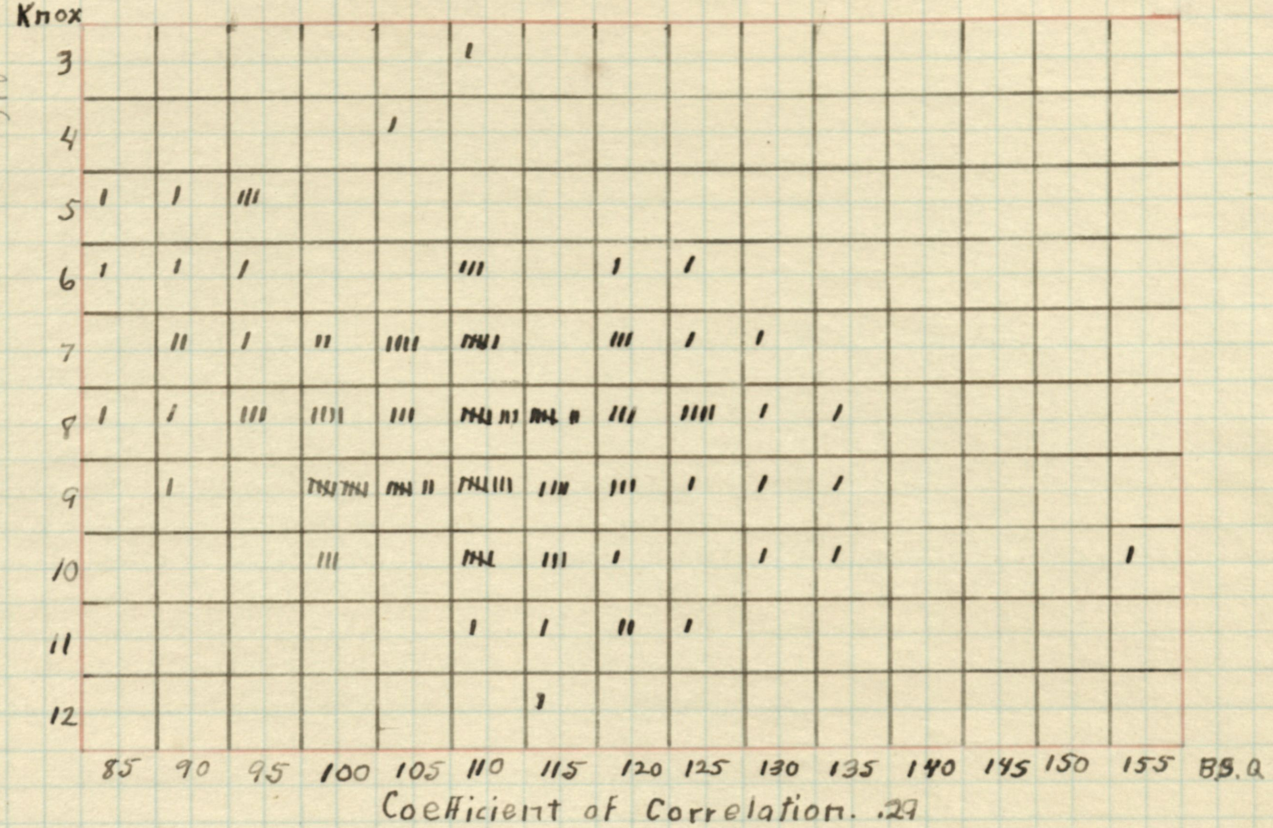
III All Ages



Coefficient of Correlation .45

37b

IV all ages

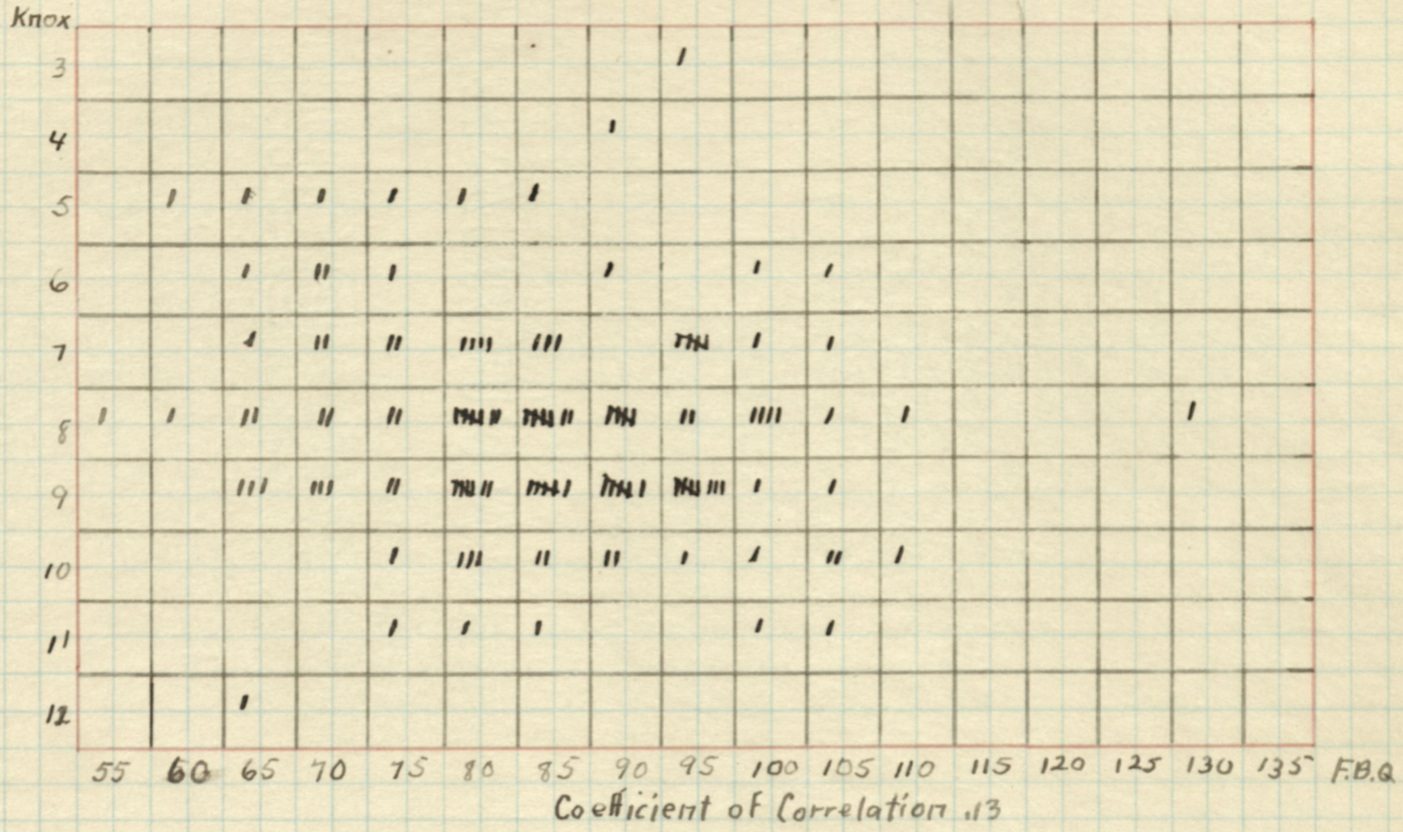


37b

Coefficient of Correlation. .29

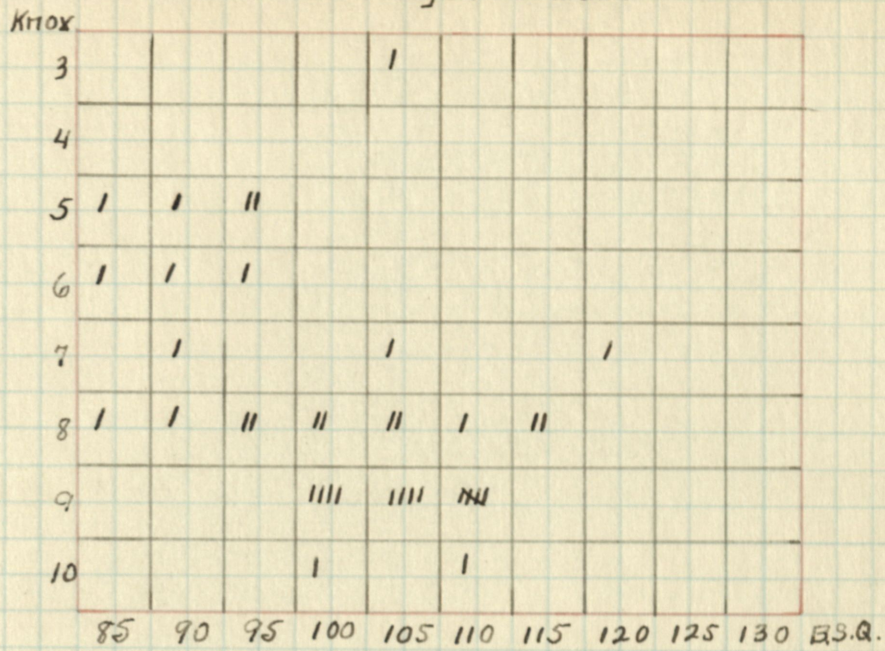
37c

V All Ages



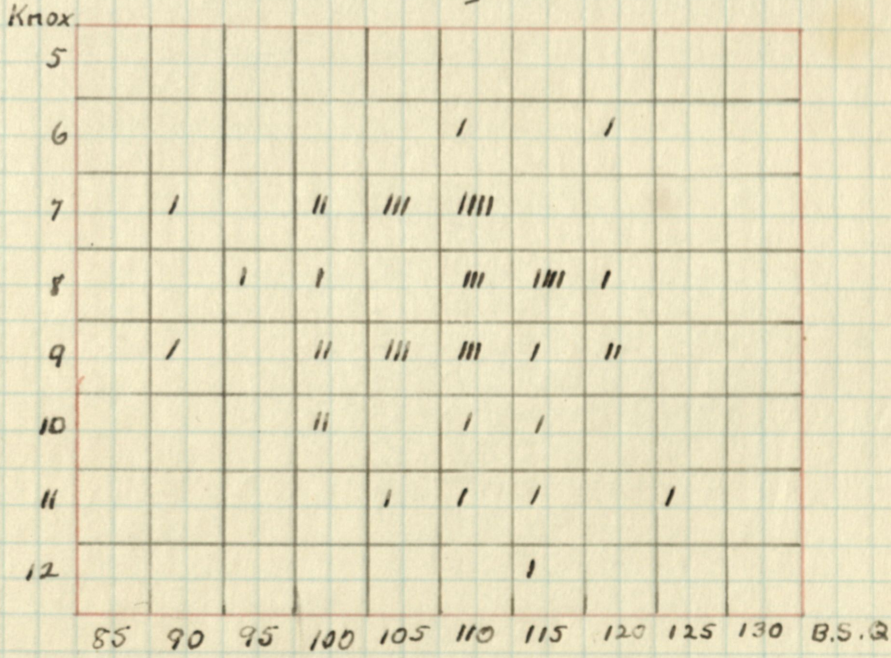
Coefficient of Correlation .13

VI Age 12 and above



Coefficient of Correlation .42

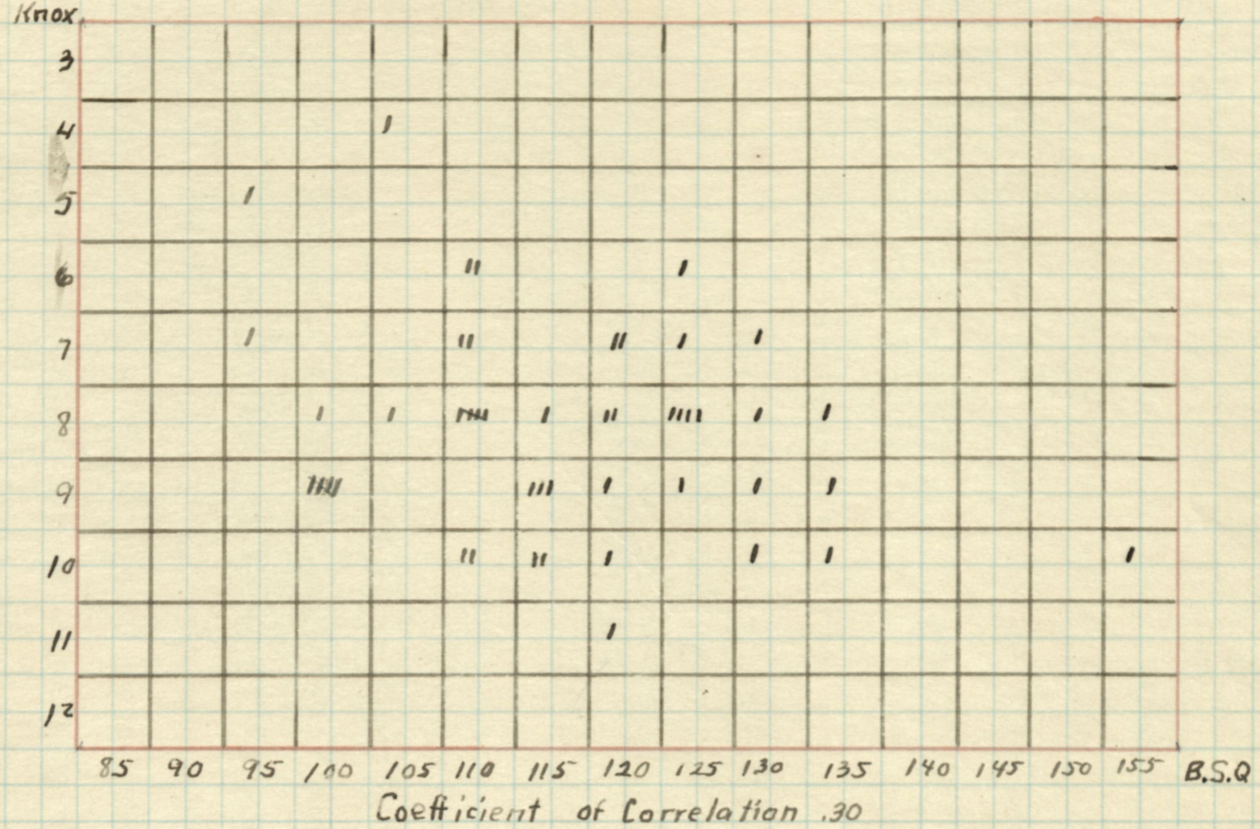
VII Age 11



Coefficient of Correlation .12

37e

VIII Age 10



Coefficient of Correlation .30

Language, and Arithmetic with the results of each test. A five-point system of marks has been used in the school system of Lawrence,- Excellent, Good, Fair or Average, Poor and Very Poor. I have treated these five steps as equal: ie. E=5, G=4, F=3, P=2, VP=1. Correlations with the results of Standard Educational tests would be more scientific but limited time prevented the securing of such data.

A correlation of .35 is shown for the combined age groups by graph IX between the B.-S. Quotients and Geography. A coefficient of .43 for age 12, .19 for age 11, and .47 for age 10 is represented by graphs XII, XIII and XIV, respectively.

The B.-S. Quotients for the entire group are correlated with the marks in Arithmetic in graph X. The Coefficient of Correlation is .32, while graphs XV, XVI and XVII, respectively, show for age 12 a coefficient of .18, age 11 a coefficient of .00, and age 10 a coefficient of .43.

The B.-S. Quotient, which is criticised for its dependence upon language facility, when correlated with the teachers' marks in Language, produces a coefficient of .17 for the combined group as shown in graph XI. For age

IX All Ages

Geog

	70-74.9	75	80	85	90	95	100	105	110	115	120	125	130	135	155	B.S.Q
E						1	1		1	II	III	1	1	II		
G			1	1	1	5	IIII	5 5	5 5 III	5 1	5 II	5 III	III	1	1	
F				II	III	III	5 5	5 1	5 5 II	5 1	II					
P			1		III	II	5	III	1	II	III					
VP	1				II		1	1	1	1						

Coefficient of Correlation .35

X All Ages

Arith

	70-74.9	75	80	85	90	95	100	105	110	115	120	125	130	135	155	B.S.Q
E								II	III	1	II		1	II	1	
G		1	1		II	II	5 1	5 1	5 5 II	5	IIII	5 II	II	1		
F				II	III	5 1	5 5	IIII	5 5 II	IIII	5	III				
P	*				III	II	5 1	IIII	IIII	5 1	III					
VP	1		1	1	II	II	1	III	II	II			1			

Coefficient of Correlation .32

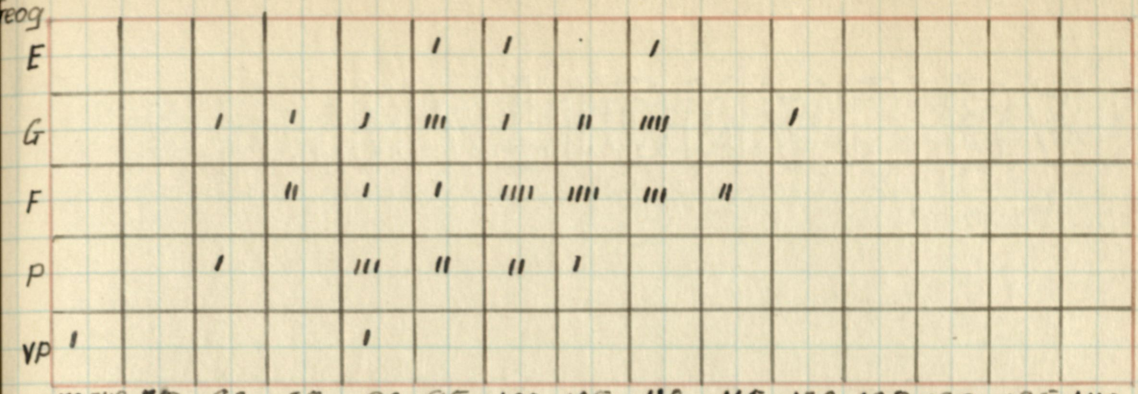
XI All Ages

Lang

	70	75	80	85	90	95	100	105	110	115	120	125	130	135	155	B.S.Q
E			1				1	II	5 II	IIII	III	III	II	III	1	
G				II	III	5	5 5	5 1	5 5 III	5 III	5 1	5	1			
F				1	5	5 1	5 III	5 1	5 II	5 1	III	II	1			
P	II		1		1	1	III		1		III					
VP					1											

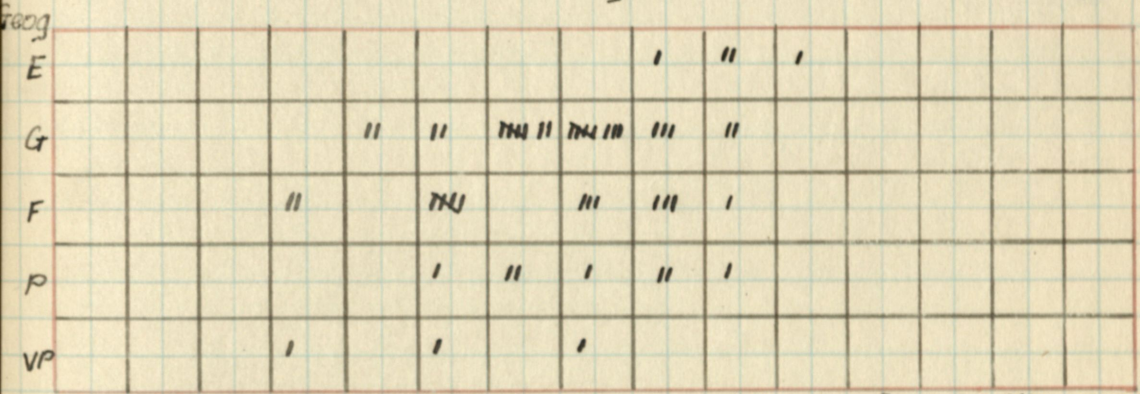
Coefficient of Correlation .17

XII Age 12 and above



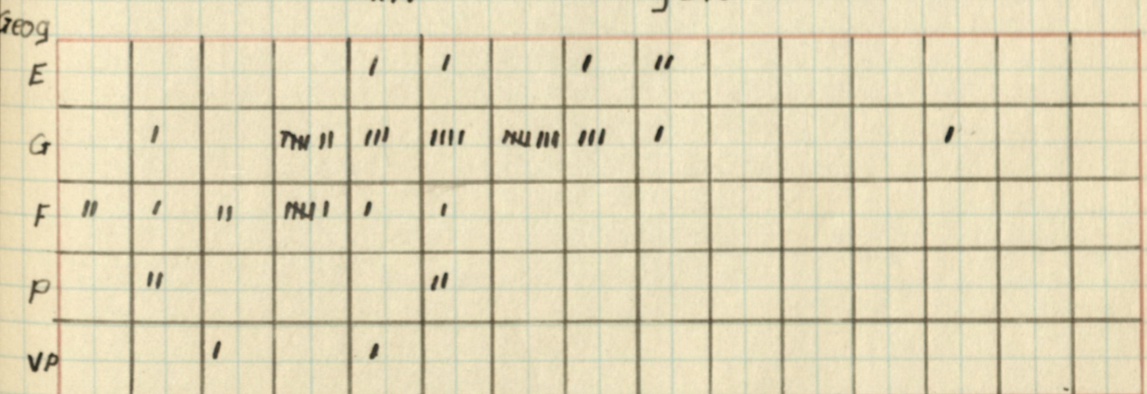
Coefficient of Correlation .43

XIII Age 11



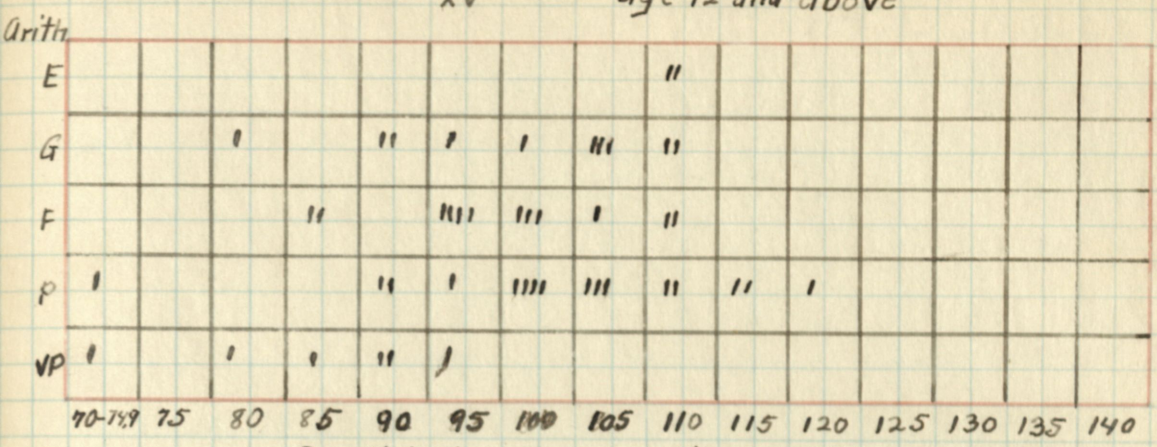
Coefficient of Correlation .19

XIV Age 10



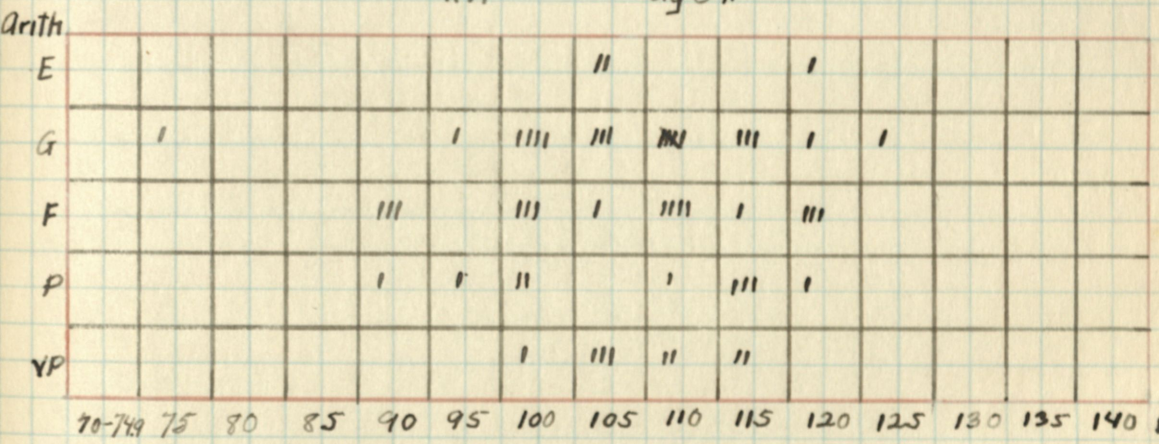
Coefficient of Correlation .47

XV Age 12 and above



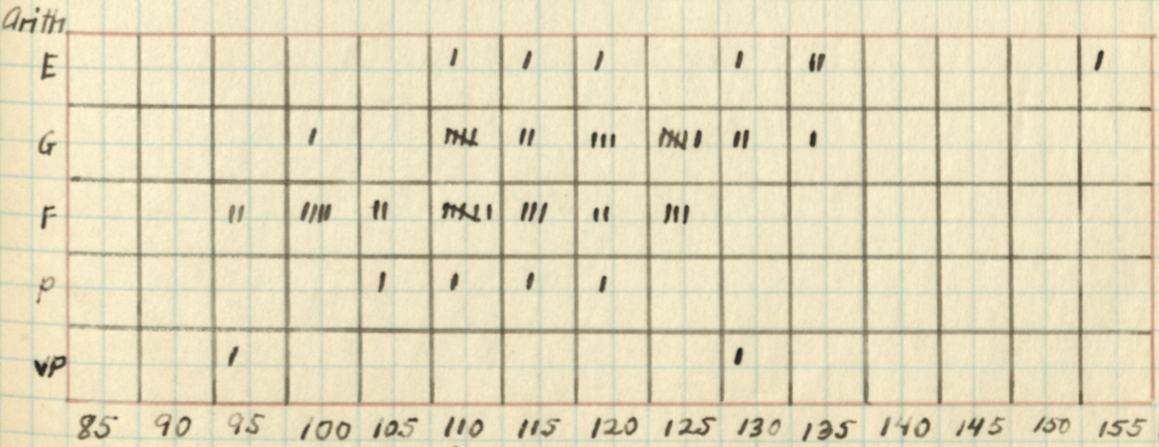
Coefficient of Correlation .18

XVI Age 11



Coefficient of Correlation .00

XVII



Coefficient of Correlation .43.

XVIII Age 12 and above

Lang	85	90	95	100	105	110	115	120	125	130	135	140	155
E				/		/							
G	//	//	//	//	////	/////							
F	/	/	//	///	///	/	//						
P			/	/		/		/					
VP		/											

B.-S.Q.

Coefficient of Correlation -.06

XIX Age 11

Lang	85-89	90	95	100	105	110	115	120	125	130	135	140	155
E					/	/	//	//					
G			/	////	///	///// ////	///	//	/				
F		/		//	/	///	///						
P		/		/				/					
VP													

B.-S.Q.

Coefficient of Correlation .20

XX Age 10

Lang	85-89	90	95	100	105	110	115	120	125	130	135	140	155
E						////	//	/	//	///	///		/
G				///	/	////	////	///	///	/			
F		/	/	//	/	///		///	//	/			
P													
VP													

Coefficient of Correlation .45

12 the Coefficient is -.06, for age 11 it is .197, for age 10 it is .46 as demonstrated by graphs XVIII, XIX, and XX, respectively.

The Form Board Time, which decreases with maturity, is correlated with Geography in graph XXI producing for the combined ages a Coefficient of -.26. In graph XXIV the Coefficient for age 12 is -.18, in graph XXV for age 11 it is -.26, and in graph XXVI for age 10 it is -.30.

The Form Board Time correlated with Arithmetic marks shows in graph XXII a Coefficient of -.11 for all ages, in graph XXVII a coefficient of +.09 for age 12, in graph XXVIII a Coefficient of -.19 for age 11, and in graph XXIX a Coefficient of .00 for age 10.

The Form Board test, claimed by its originator to be independent of language facility, when correlated with the marks in Language gives a Coefficient of -.16 for the entire group, as shown in graph XXIII, a Coefficient of -.12 for age 12 in graph XXX, a Coefficient of -.20 for age 11, in graph XXXI, and a Coefficient of -.22 for age 10 in graph XXXII.

The Knox Cube, although not sufficiently standardized by ages to be used to determine mental age, produces interesting results when correlated with teachers' marks.

XXI All Ages

Geog

	13-13.9	14	15	16	17	18	19	20	21	22
E	I	II	IIII			I	II	I		
G	III	IIII II	IIII IIII III	IIII IIII	IIII IIII	III	IIII	II		
F	IIII	IIII	IIII IIII	IIII	IIII III	IIII I	I		II	I
P		I	II	II	II	IIII	I	II	I	
VP				II			II	I		

F.B. Time

Coefficient of Correlation -.27

XXII All Ages

Arith

	13-13.9	14	15	16	17	18	19	20	21	22
E		I	III	I	II		I	I		
G	IIII	IIII II	IIII IIII	IIII	IIII IIII	I	III	II	II	
F	III	IIII	IIII IIII	IIII	III	IIII IIII	IIII		I	
P	III	III	IIII I	IIII	III	I	II			I
VP			II	II	II	III	I	II	I	

F.B. Time

Coefficient of Correlation -.11

XXIII All ages

Lang

	13-13.9	14	15	16	17	18	19	20	21	22
E	III	III	IIII	III	IIII	I	II	II		
G	III	IIII III	IIII IIII III	IIII I	IIII II	IIII	IIII	IIII	II	
F	I	IIII	IIII II	IIII II	II	IIII I	IIII		II	I
P	I	I	III	IIII		IIII	IIII	I	I	
VP				I						

F.B. Time

Coefficient of Correlation -.16

XXIV Age 12 and above.

Geog.	13-13.9	14	15	16	17	18	19	20	21	22
E	I		I			I				
G		III	IIII		I		I			
F	II	I	IIII	III	IIII	I	I			
P		II	I			II	I	I		
VP				I						

F. B. Time.

Coefficient of Correlation −.18

XXV Age 11

Geog	13-13.9	14	15	16	17	18	19	20	21	22
E		II	I				I	I	I	
G	III	III	IIII	III	IIII	I	I			
F	II	II	III	I	II	I			I	
P				II	II			I	I	
VP				I			I	I		

F. B. Time

Coefficient of Correlation −.26

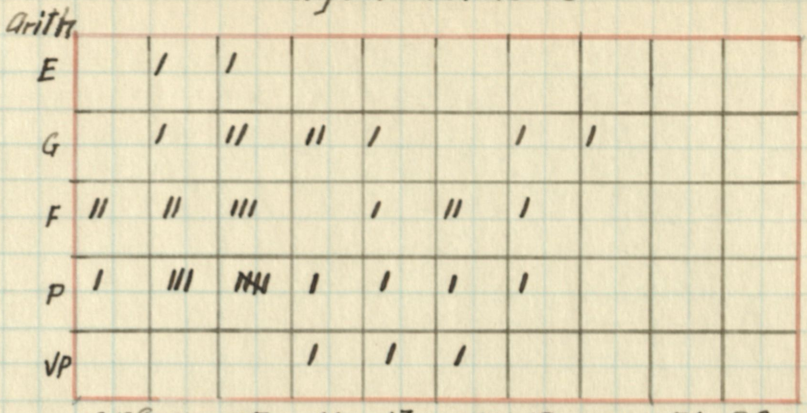
XXVI Age 10

Geog	13-13.9	14	15	16	17	18	19	20	21	22
E			III				I			
G		I	IIII	IIII II	IIII	II	III		I	
F		I	I	II	II	IIII			II	
P				I		III				
VP						I				

F. B. Time

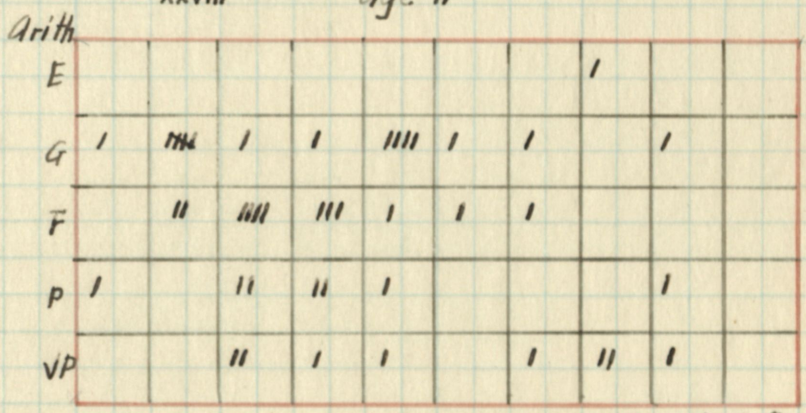
Coefficient of Correlation −.30

XXVII Age 12 and above



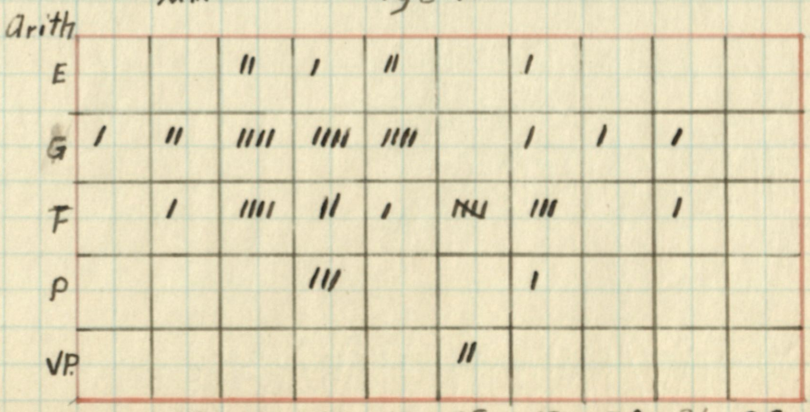
Coefficient of Correlation .10

XXVIII Age 11



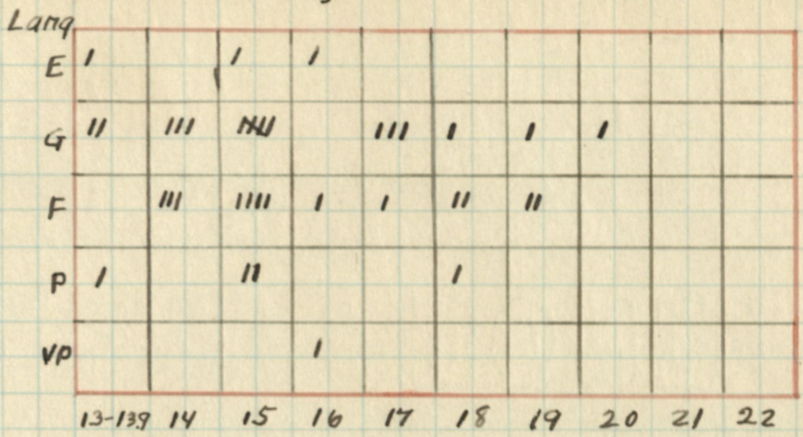
Coefficient of Correlation -.19

XXIX Age 10

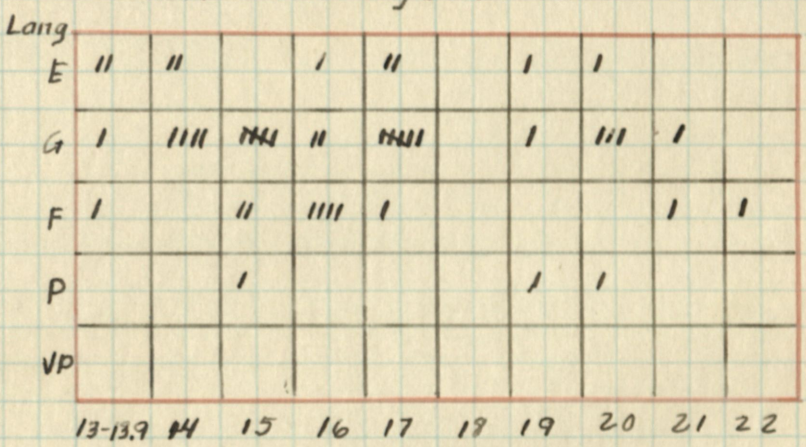


Coefficient of Correlation .00

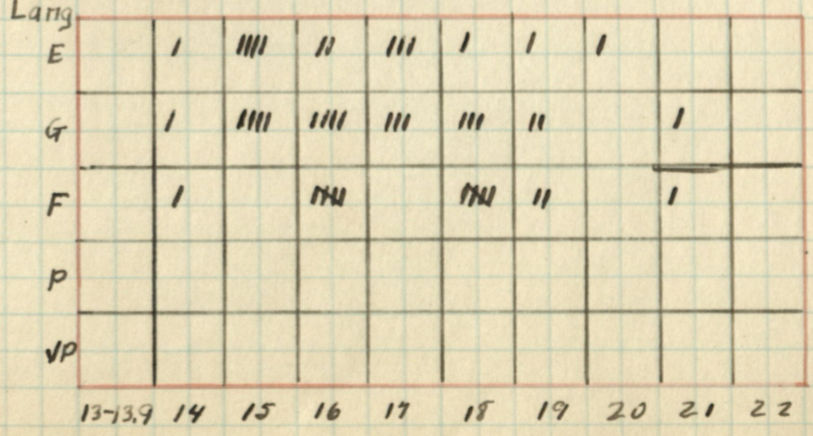
XXX Age 12 and above



XXXI Age 11



XXXII Age 10



With Geography as in graph XXXIII the Coefficient is .33 for the entire group, in graph XXXIV it is .11 for age 12, in graph XXXV it is .33 for age 11, and in graph XXXVI it is .17 for age 10.

In comparison with the marks in Arithmetic Graph XXXIV produces a Coefficient of .53 for the combined age group, graph XXXIX a Coefficient of .51 for age 12, graph XL a Coefficient of .43 for age 11, and graph XLI a Coefficient of .17 for age 10.

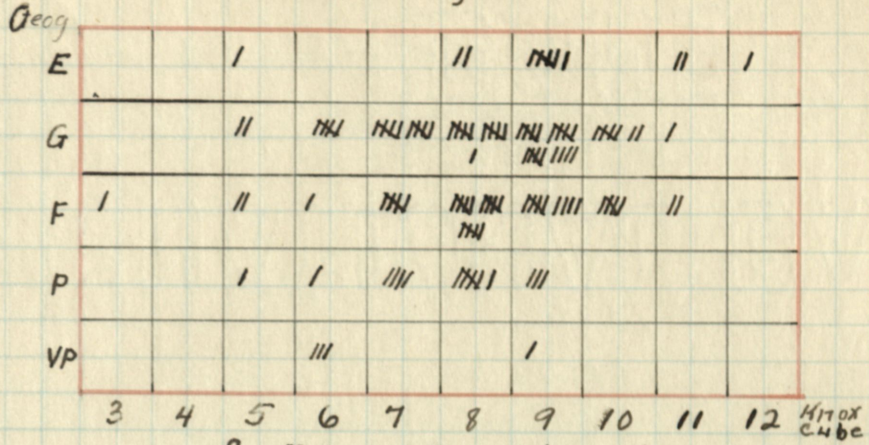
Correlated with Language the Knox Cube tests yield in graph XXXV a Coefficient of .34 for the combined group, in graph XLII a Coefficient of .43 for age 12, in graph XLIII a Coefficient of .08 for age 11, and in XLIV a Coefficient of .41 for age 10.

The Knox Cube Test performances of the entire group correlated with the total marks in the three subjects, Geography, Arithmetic and Language, as represented by graph XLV results in a Coefficient of .30.

The results of this study, while not sufficient to prove any theory, indicate a number of tendencies which warrant further investigation.

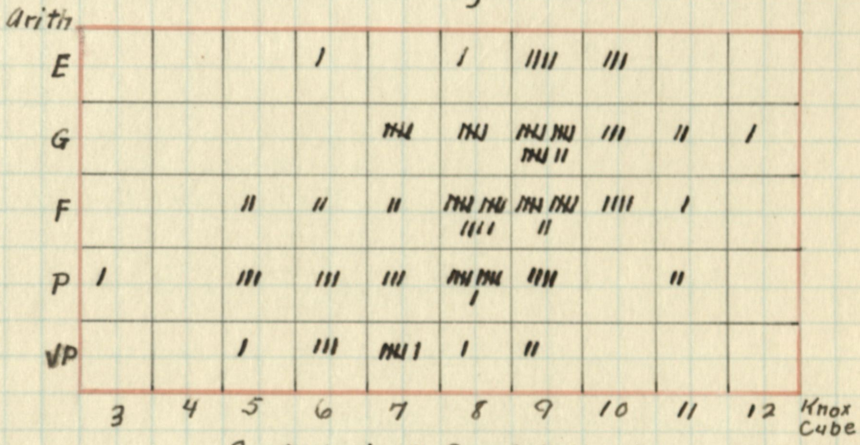
The comparatively low degree of correlation between the B.-S.Quotients and the grades in school

XXXIII All Ages.



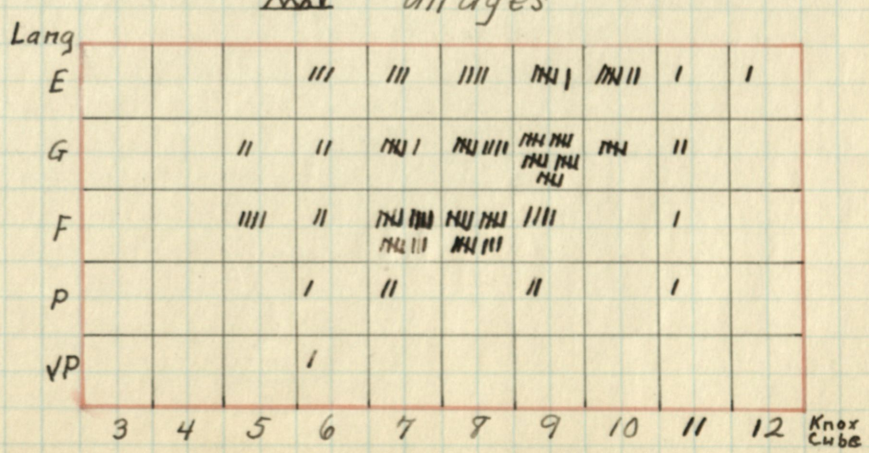
Coefficient of Correlation, .33

XXXIV All Ages.



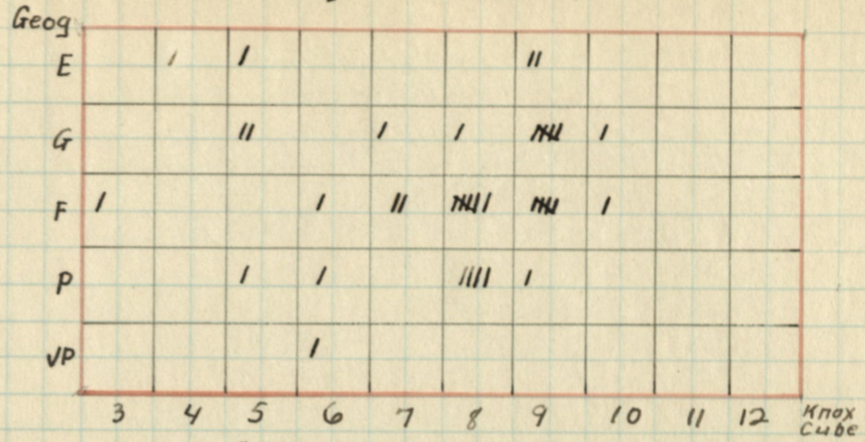
Coefficient of Correlation, .53.

XXXV All Ages



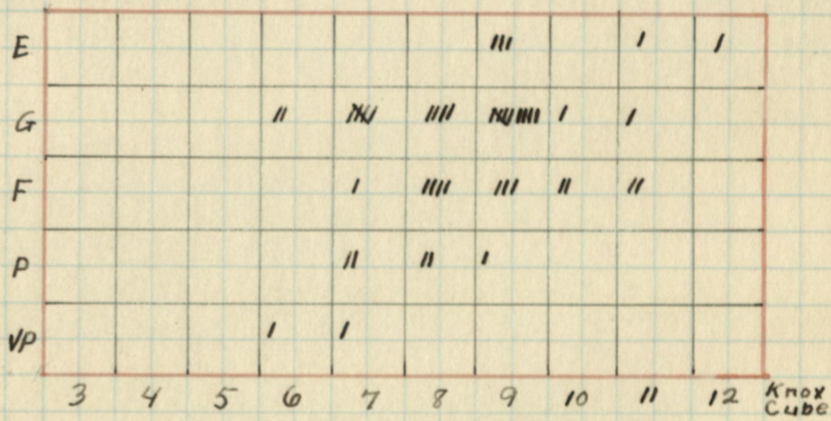
Coefficient of Correlation .34

XXXVII Age 12 and above



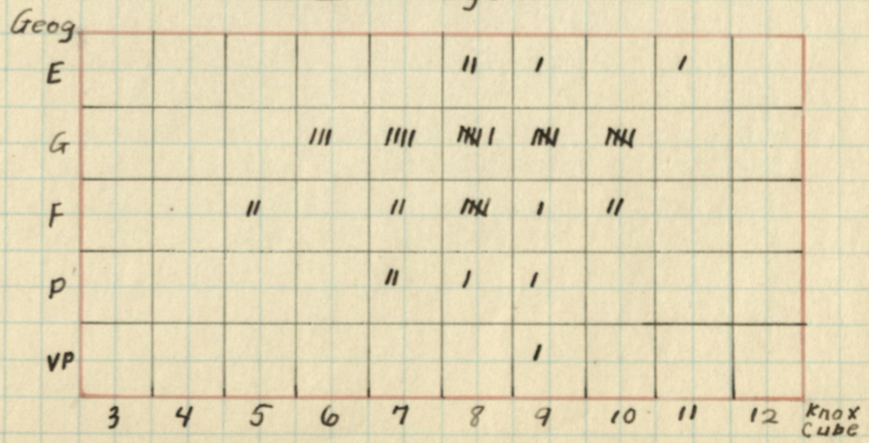
Coefficient of Correlation .11

XXXVIII Age 11



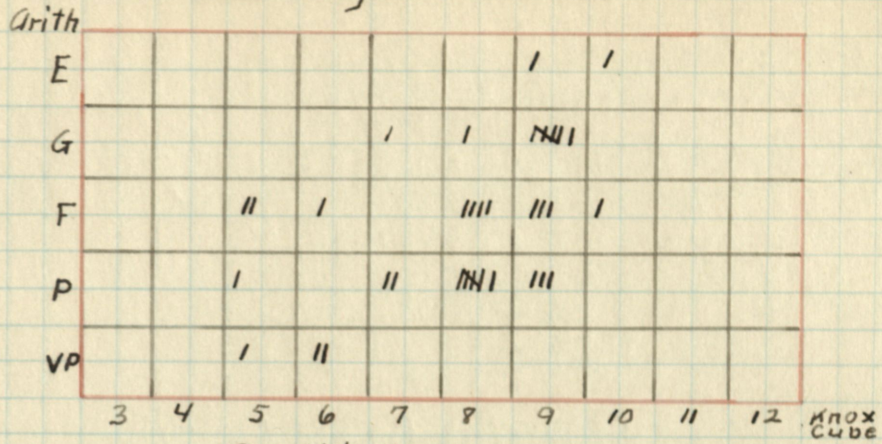
Coefficient of Correlation .33

XXXVIII Age 10



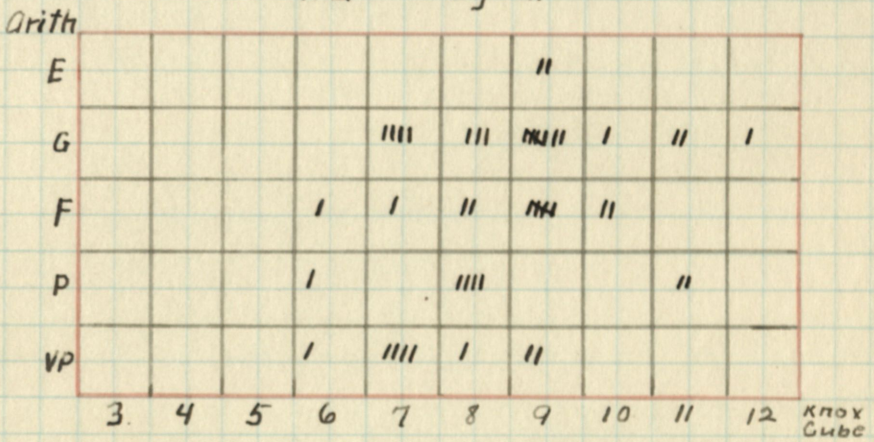
Coefficient of Correlation .17

XXIX Age 12 and above



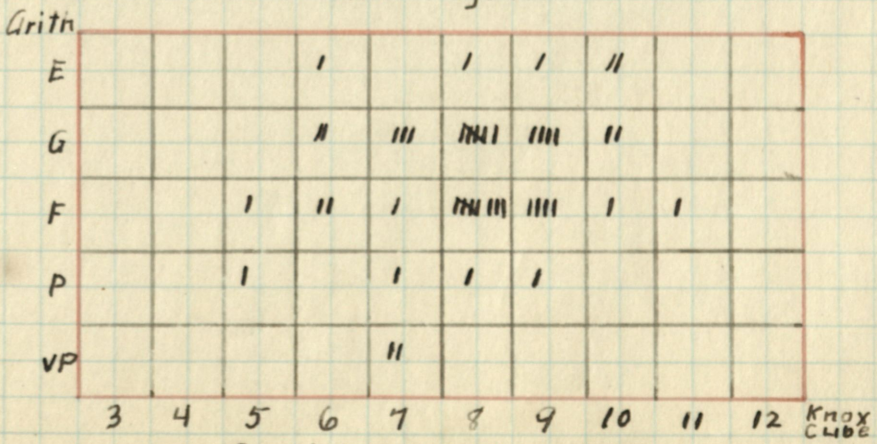
Coefficient of Correlation .51

XL Age 11



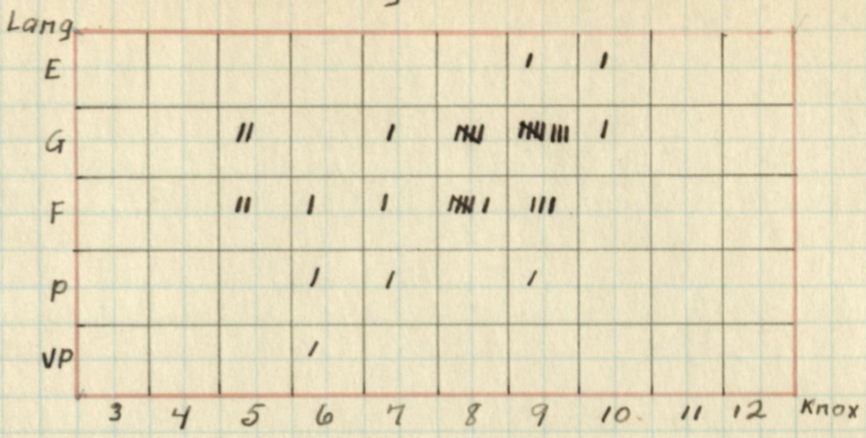
Coefficient of Correlation .43

XLI Age 10



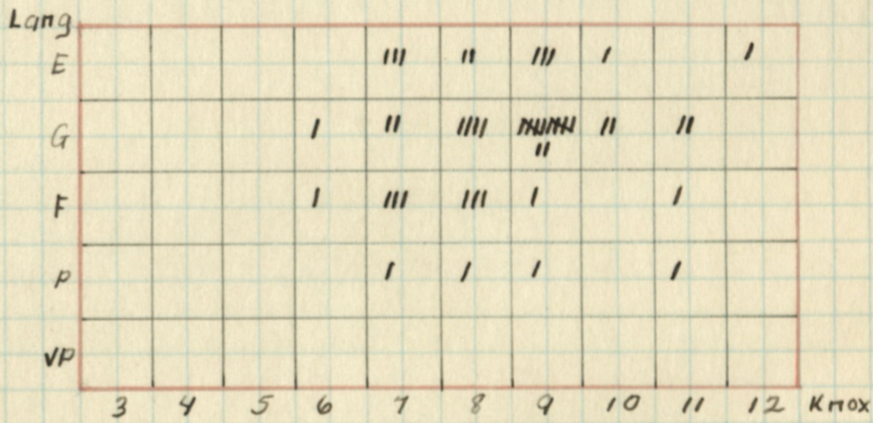
Coefficient of Correlation .17

XLII Age 12 and above



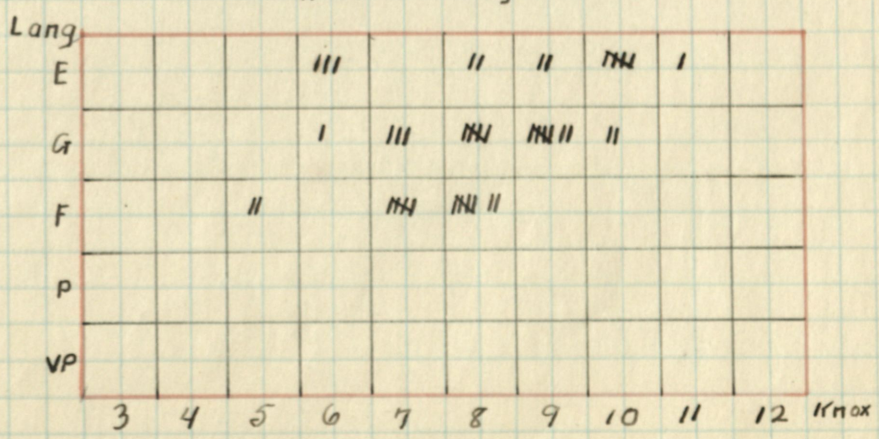
Coefficient of Correlation .43

XLIII Age 11



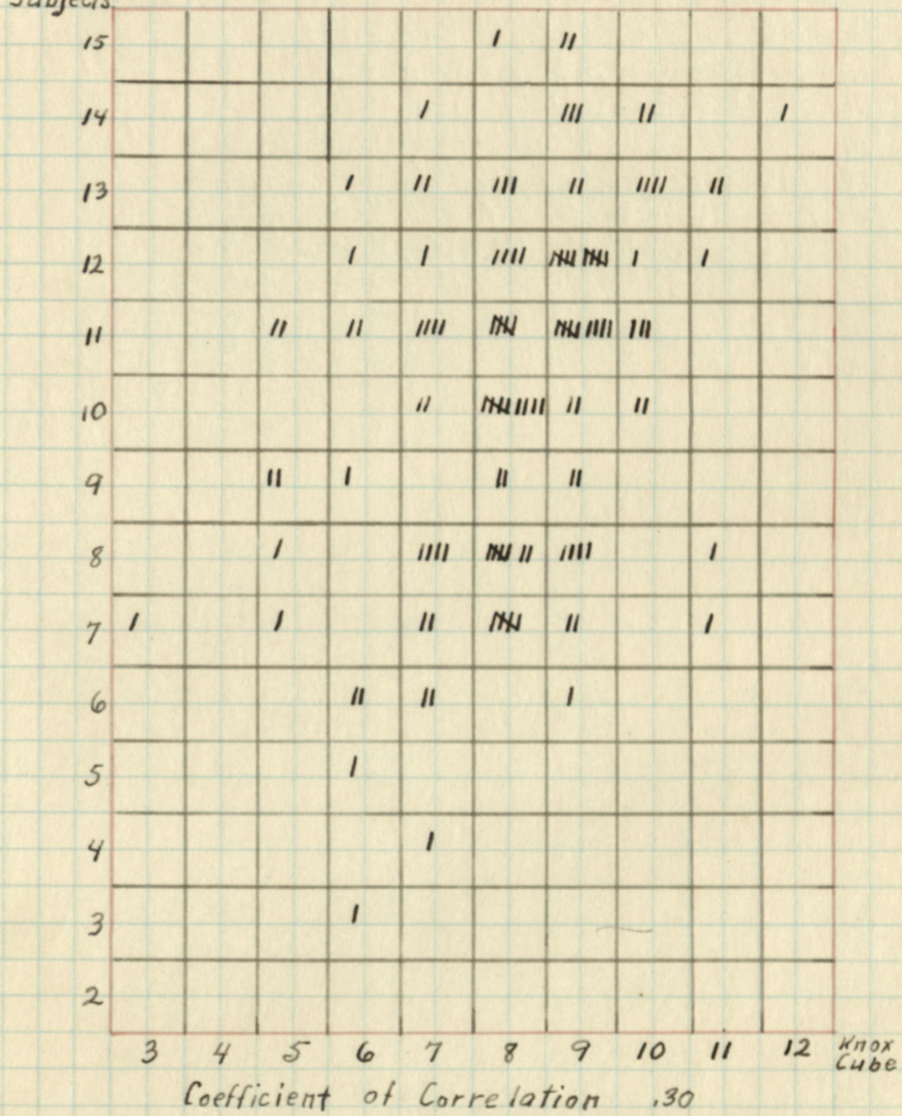
Coefficient of Correlation .08

XLIV Age 10



Coefficient of Correlation .48

XLV All Ages



Coefficient of Correlation .30

- SUMMARY OF COEFFICIENTS OF CORRELATION -

B.S.Q. -	F.B.Q.	.45
B.S.Q. -	Knox (All ages)	.29
F.B.Q. -	Knox (" ")	.13
B.S.Q. -	Knox (Age 12)	.42
B.S.Q. -	Knox (" 11)	.12
B.S.Q. -	Knox (" 10)	.30
B.S.Q. -	Geog.(All ages)	.35
"	Arith.(" ")	.32
"	Lang.(" ")	.17
"	Geog.(Age 12)	.43
"	" (" 11)	.19
"	" (" 10)	.47
"	Arith(" 12)	.18
"	" (" 11)	.00
"	" (" 10)	.43
"	Lang (" 12)	.06
"	" (" 11)	.20
"	" (" 10)	.45
F.B.Time-	Geog (All ages)	-.26
"	Arith(" ")	-.11
"	Lang (" ")	-.16
"	Geog (Age 12)	-.18
"	" (" 11)	-.26
"	" (" 10)	-.30
"	Arith(" 12)	+.10
"	" (" 11)	-.19
"	" (" 10)	.00
"	Lang (" 12)	-.12
"	" (" 11)	-.20
"	" (" 10)	-.22
Knox -	Geog (All Ages)	.33
"	Arith(" ")	.53
"	Lang (" ")	.34
"	Geog (Age 12)	.11
"	" (Age 11)	.33
"	" (" 10)	.17
"	Arith(" 12)	.51
"	" (" 11)	.43
"	" (" 10)	.17

Knox - Lang	(Age 12)	.43
" "	(" 11)	.08
" "	(" 10)	.41
" Total	(All ages) . .	.30

subjects may be due to the fact that the B.-S.Tests involve a great variety of mental functions while a single school subject involves a more limited number.

The correlation between the B.-S.Quotients and both the Form Board Quotients and the Knox Cube performances is high enough to lead one to suppose that they test related mental functions, and, at the same time, low enough to indicate that they test functions that are not absolutely inseparable.

The Knox Cube Test, in its present form is not a satisfactory test of mental maturity. Nevertheless, its high degree of correlation with Arithmetic grades suggests that its value may be prognostic with reference to that subject. It seems evident to the writer that it tests original mathematical endowment. Until further evidence proves this conclusion erroneous, the Knox Cube Test is recommended for that purpose.

The sense of space relationship involved in the Form Board test is probably the element that produces a distinct correlation with marks in Geography. The same element is undoubtedly related to arithmetical ability altho it is not indicated by the correlation of that

subject with Form Board time. In this connection, while data of errors were not regularly recorded, yet the writer is of the conviction that the errors in the Form Board performance are probably more significant than the time element.

The irregularity in the distribution of the various results for each age except the ten-year group suggests that in dealing with small numbers of individuals, particularly in this school age, ten is the most satisfactory for investigation.

If these performance tests, on further investigation, are found to furnish additional information concerning the mentality of the child, they will be valuable supplements for the B.-S. tests.

Within the B.-S. series the results of some of the individual tests show a marked correlation with the results of the entire test. Further study will likely reveal a simple test or group of tests which can be used, in school, to locate the individuals who need detailed mental examination.

2. The Educational Treatment of Superior Endowment.

After the cases of Superior endowment have been discovered, the next obligation of the educational system

is to develop the potential capacity. The degree to which the obligation has been met can best be estimated by a brief review of the provisions that have been made for that purpose.

First, the curriculum had been, previous to the change made by President Eliott, rigid and unalterable. The prescibed course was followed literally with no opportunity to adjust the subject matter to meet the needs of the individual. The curriculum, rather than the mental endowment of the pupil, determined the course to be followed.

Second, the pupils evenyet are grouped according to grade and are given exactly the same instructions, regardless of the difficulties of the individuals. If one boy solves all his arithmetic problems correctly, he is required to assume the attitude of attention to the explanations given to those who have not solved the problems; if he can spell perfectly all the words included in his lesson, he, with the rest of the class, is required to study and recite the exact number of words prescribed by the course of study.

And, third, at the end of the year the entire class, with the exception of those who have failed to

meet the prescribed requirements in one or more subjects are promoted to the next grade. In this lock-step system of promotion the only opportunity for the accommodation of individual variation is failure to pass to the next grade. This system, with numerous openings thru which the individual may fall below grade but none thru which he may rise above grade, is responsible for the asymmetry in the age-grade distributions quoted in Chapter II. It accounts, also, for the great variety of ability to be found within a given grade, cited, also, in Chapter II. The individual, even tho he does measure up to the sixth grade standard of ability is in the fifth or even the fourth grade because he started to school with the class which has not yet reached the sixth grade.

These three conditions[35] - uniform curriculum, group teaching regardless of individual differences, and lock-step progress - are, fortunately, obsolescent. In the twentieth century scientific methods of investigation have been, and are being, adapted to the educational system. As a result of investigation many progressive movements have been initiated.

One of the most important of these movements is the standardization of mental tests as already discussed

in this chapter. While these tests are not perfect, they are better than none. The rapid increase in their use in school systems cannot fail to bring to light undiscovered talent. These standards emphasize variability as nothing else can.

Discovery of Superior Mentality is only the first step toward the solution of the problem confronted by the educators. The next step is to adjust the school system to the pupils. The first phase of adjustment must be in the curriculum. Children are no longer required, regardless of ability or future occupation, to perform exactly the same work. The boy who shows inventive or mechanical ability and who seems to have no memory for conjugations is allowed to exercise the ability he possesses. Vocational schools or branches in the regular schools have been established for the accommodation of such individuals.

The junion high school provides a differentiated curriculum for the seventh and eighth grades. The individual may follow the course which prepares him for the regular high school or the one which prepares him for the vocational school. Both vocational education and the junior high schools are, yet, in the formative stage.

A second adjustment is in the method of teaching.

Instead of grouping the children together and requiring all to listen to the explanations needed by a part of the class, they are, in the most progressive schools, given individual attention. If several pupils have difficulty with the same part of the assignment, they receive instructions in a group. But the group lines are growing more flexible.

And, a third adjustment, made by scientific administrators is the promotion scheme. The pupils are allowed to progress according to their ability rather than their age or the number of years in school. The first thing that is usually done is to increase the number of promotions from yearly to semi-yearly or quarterly. This plan makes the classes close enough together that failure means the loss of only a few weeks and skipping a grade means skipping only a small amount of work. Once frequent promotions are secured, special promotions are more common.

Another plan is promotion by subject rather than by grade. If a child is failed in one subject, he is allowed to repeat that subject and continue in other subjects. Or, if the child shows Superior ability in one subject he is allowed to advance in that subject more rapidly than

in others. This scheme in connection with a differentiated curriculum permits the child to emphasize his strong points without being checked by his weak ones.

The plan best suited to the larger school systems is parallel courses. Each grade is divided into groups according to ability and each group is allowed to progress at its own speed. The Superior group may accomplish twice as much in a given time as the Inferior.

And still another provision is the ungraded room in which the Superior child is given the help needed to prepare him for the grade he is to enter on skipping a grade or to strengthen his weak subjects.

A more adequate idea of the development of this type of work can be given by a brief discussion of the replies received by the writer recently from twenty-six city superintendents to the query: How does your school system provide for the development of the exceptionally endowed child? The following is a summary of these replies:

Cities making no provision for superior endowment 5
" providing special promotion 7
" " " " and subject promotion 2
" " " classes 12

The term "special classes" is used in this case to

include the Superior group in parallel courses, the ungraded room for Superior children, and summer courses given to assist capable children to skip a grade. Each superintendent reporting no provision for Superior endowment states that the administration realizes the need of such a provision and expects soon to begin work along that line. An interest in individuals and their variations, as expressed in these replies, is an indication of progress.

The present tendency is to allow the pupil to advance as rapidly as possible without impairing the quality of his work. Whatever plan is adopted, the child must have the attention he needs rather than the attention another child needs.

3. The Social Utilization of Superior Endowment.

Society derives a benefit from every Superior individual it produces. Hence, it is the business of society to produce as many of them as possible. That this business has been neglected is verified by a study of the state appropriations. The state of Iowa alone, from the time of its organization to 1899, "paid about seven times as much for the care, education, and reformation of her unfortunates as for the education of her intellectual élite; seven times as much for those at the foot of the ladder

as for those at the top".[36]

If this proportion were reversed - not the provision for the Inferior group decreased but that for the Superior increased - the state appropriation would be sufficient to maintain and the legislature could demand an educational system prepared to diagnose mentality and to develop the capacity whether specific or balanced. Society would produce a much larger group of Superior individuals.

- S U M M A R Y -

Individual mental variation while it increases the problems of education also increases the opportunity for progress. Each advance movement in civilization has resulted from the failure of traditional customs to overcome the individuality of some of the atypical members of society.

Approximately one-fifth of the pupils in the schools are exceptionally endowed. This fifth of the rising generation responsible for the future progress of civilization must be : (1) discovered by the use of the best available mental tests, (2) educated, as

individuals, for the use of their exceptional endowment, and (3) directed into the phases of social activity best suited to their special abilities.

The present tendency of educational activities is in the direction of flexibility in the curriculum, the promotion system, and the grade system. The child is coming to be the basis of the entire educational plan.

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Chron.Age	B.S.Age	B.S.Q.	F.B.Time E.H:L.H.	F.B.Q.	Knox	Teachers Marks Ge.	Arith.	Lan.
1.15.55	12.4	.80				G	G	E
2.15.08	10.9	.72				V P	V P	P
3.14.12	13.00	.92				P	V P	F
4.13.41	9.9	.74					P	P
5.13.27	11.6	.87	17.4:18.6	.63	5	G	V P	G
6.13.43	11.1	.83				P	V P	P
7.13.41	13.0	.97				G	G	G
8.13.02	10.9	.84						
9.12.67	11.5	.91	21.4:20.0	.59	8	P	G	G
10.12.60	11.3	.90				F	P	F
11.12.55	11.6	.93	18.6:14.8	.86	5	P	P	F
12.12.55	12.8	1.02	16.2:17.6	.71	9	F.	P	F
13.12.33	12.2	.99	15.0:16.2	.83	5	G	F	G
14.12.30	13.6	1.11	15.4:14.6	.83	10	G	E	G
15.12.25	11.5	.93	16.2:19.2	.74	6	V P	V P	V P
16.12.16	11.6	.95	18.4:18.2	.67	5	E	F	F
17.12.16	12.6	1.04	17.2:15.6	.71	9	P	P	P
18.11.95	12.8	1.07	17.8:14.8	.85	8	P	P	F
19.11.83	11.2	.95	19.2:18.6	.75	8	P	P	F
20.11.77	13.2	1.12	15.8:15.0	.85	8	G	P	G
21.11.75	10.7	.91						
22.11.71	10.9	.93						
23.11.65	13.2	1.13						
24.11.65	11.7	1.00	15.8:16.4	.80	8	F	F	F
25.11.50	11.8	1.03	19.6:19.2	.66	8	P	P	F
26.11.45	10.7	.93						
27.11.42	12.8	1.12	13.4:13.6	.97	3	F	P	P
28.11.33	12.0	1.06	14.6:15.8	.98	9	G	G	G
29.11.33	12.8	1.13	14.0:13.8	.94	9	E	F	G
30.11.32	12.0	1.06	19.4:19.6	.66	9	G	G	G
31.11.30	12.6	1.12	19.2:21.0	.66	9	F	F	F
32.11.30	11.7	1.04	15.6:14.0	.95	9	G	F	E
33.11.25	12.9	.88	18.8:20.4	.70	8	F	F	G
34.11.20	11.0	.98				G	F	F
35.11.20	11.5	1.03	13.8:14.6	.96	10	F	F	E
36.11.20	11.8	1.06	17.0:16.8	.76	9	F	G	G
37.11.16	10.2	.91	19.2:17.0	.77	7	F	G	G
38.11.14	11.9	1.07	16.8:15.6	.83	9	F	P	F
39.11.13	11.5	1.03				F	P	F
40.11.13	9.6	.86	17.2:15.0	.98	6	F	F	F
41.11.10	13.0	1.17	16.4:15.8	.85	8	F	P	F
42.11.08	12.6	1.14	16.4:15.6	.84	9	F	G	E
43.11.08	11.3	1.02	16.6:15.8	.84	9	E	G	G
44.11.08	11.5	.95	17.4:17.8	.80	8	F	F	G
45.11.00	12.8	1.15	17.0:18.2	.79	8	F	P	F
46.11.00	5.2	.47						
47.10.91	12.2	1.12	15.2:16.4	.88	9	G	G	G
48.10.91	12.0	1.10	17.8:15.2	.88	9	G	E	G
49.10.84	10.7	..99	21.6:18.0	.75	6	P	V P	P
50.10.80	13.2	1.22	15.0:16.2	.99	7	G	P	P

Chron. Age	B.S.Age	B.S.Q.	F.B.Time R.H:L.H.	F.B.Q.	Knox	Teacher's Marks Ge.	Arith.	Lan.
51.10.83	11.8	1.09	14.0:17.0	1.08	7	F	P	F
52.10.80	11.7	1.08	17.0:13.6	.87	8	F	F	G
53.10.77	10.7	1.00	20.6:21.0	.66	9	G	G	G
54.10.70	9.8	.91	21.4:18.6	.73	9	F	F	P
55.10.68	11.4	1.07				G	F	G
56.10.68	12.6	1.18	16.4:17.0	.80	8	F	P	F
57.10.65	12.2	1.14	13.4:14.6	1.14	7	G	G	E
58.10.65	12.6	1.18	14.0:14.6	1.00	9	G	F	G
59.10.63	10.3	.97	19.2:18.6	.74	8	G	G	G
60.10.61	12.6	1.19	19.8:19.6	.69	12	E	G	E
61 10.60	12.2	1.05	19.8			G	E	E
62 10.59	19.6	.91	19.4 16.6	.81	7	VP	P	F
63 1058	11.7	1.11	18.0 14.6	.98	7	F	G	G
64 10.58	12.4	1.17	20.2 20.4	.68	8	P	VP	G
65 10.58	11.2	1.06	14. 13.2	1.05	9	G	G	G
66 10.50	9.8	.93				F	F	F
67 10.5	11.8	1.12	18.8 17.4	.78	11	G	G	G
68 10.5	10.4	1.00	19.0 15.	.93	9	F	G	F
69 10.5	11.3	1008	16.8 16.0	.85	7	P	VP	F
7o 10.5	12.6	1.20	16.3 14.6	.97	9	E	G	E
71 10.5	12.8	1.22	15.2 13.	1.06	11	F	P	P
72 10.5	10.8	1.00	17.4 18.8	.79	7	F	F	G
73 10.5	11.2	1.07	17.4 15.	.93	9	G	VP	G
74 10.45	12.4	1.19				G	G	F
7510042	12.4	1.19	15.6 13.2	1.06	8	F	P	F
76 10.41	12.8	1.03				P	P	G
77 10.39	966	..92					F	G
78 10.33	11.5	1.11	20.2 21.8	..69	6	VP	VP	G
79 10.33	12.8	1.1424	20.6 20.6	.67	9	E	E	E
8010. 33	10.6	1.03	16. 15.4	1.00	10	F	F	G
81 10.33	10.1	.97				G	P	F
82 10.3	12.4	1.20				P	F	P
83 1026	12.5	1.22	18. 16.4	.84	8	G	F	G
8410.26	11.4	1.11	18. 15.	.96	7	G	VP	F
85 10,25	11.6	1.12	17.4 16.	.88	7	G	G	E
8610.25	11.7	1.14	18.8 15.	.96	8	G	F	G
87 10.25	12.2	1.19	17.2 18.2	.81	8	G	G	E
88 10.25	13.	1.26	16.4 14.2	1.02	11	E	G	G
89 10.25	11.7	.98	15.6 14.8	.98	9	G	G	G
9010.2	9.9	.97	18.8 16.8	.89				
91 10.2	11.6	1.16	1515.4 15.2	.88	11	F	P	F
92 10.18	10.6	1.04				G	G	F
9310.16	10.7	1.05	19.2 17.2	.80	7	G	G	E
94 10.14	11.7	1.15				G	E	G
9510.1	11.0	1.09	2i.2 22.6	.68	7	P	VP	F
96,10.1	12.0	1.19	19.2 17.8	.80	10	P	VP	G
97 10.1	10.3	1.02	19.4 10.2	.74	7	VP	VP	P
98 10.08	10.8	1.07	19.4 22.8	.75	9	G	G	G
9910.04	12.2	1.21	16.0 17,0	.90	6	G	F	G
100 10.00	11.3	1.13	17.4 17.6	.86	8	P	P	F

	Chr. Age	B.S. Age	B.S.Q	F.B. Rh.	TIME Lh.	F.B.Q	Knox Cube	Teacher's Marks Ge	Ar	Lan
101	9.9	11.2	1.13	20.2	14.8	1.00	9	G	F	G
102	9.91	11.3	1.14							
103	9.87	10.2	1.03	22.4	26.0	.64	8	F	P	F
104	9.86	11.0	1.12	16.	17.	.90	8	F	F	G
105	9.82	11.0	1.13	20.2	17.4	.85	10	F	G	G
106	9.82	11.2	1.14	17	15.6	.95	9	G	F	G
107	9.8	10.7	1.09	18.6	17.0	.83	7			
108	9.8	9.9	1.01	19.4	14.8	.98	10	F	F	G
109	9.8	11.8	1.20	19.4	19.4	.80	11	E	F	E
110	9.8	10.2	1.04	19.	16.	.91	9	G	F	G
111	9.8	9.8	1.00	19.6	18.	.82	9	F	F	G
112	9.75	9.9	1.02							
113	9.75	12.4	1.27	17.2	15.	1.00	8			
114	9.73	11.4	1.17	22.4	16.2	.90	8	G	F	G
115	9.73	9.5	.97							
116	9.67	11.5	1.19	19.6	18.4	.79	10	G	F F	G E
117	9.65	12.8	1.33	13.8	13.0	1.14	10	G	G	E
118	9.63	12.8	1.33	17.	17.4	.87	9	G	E	E
119	9.62	11.3	1.17	19.4	17.	.87	10	F	G	G
120	9.58	9.8	1.02	14.0	15.4	1.03	8		G	F
121	9.58	9.5	.99	21.6	18.0	.81	7	F	VP	F
122	9.57	10.9	1.14					F	F	F
123	9.56	12.2	1.28	17.4	17.2	.91	8	G	G	G
124	9.54	11.3	1.19	19.6	15.8	.94	9	G	F	G
125	9.54	10.6	1.11	20.6	18.6	.79	8	F	F	F
126	9.51	10.5	1.14	15.	15.2	1.03	6	G	F	E
127	9.5	12.2	1.29	18.4	16.6	.83	9	G	G	G
128	9.45	10.6	1.12					G	F	G
129	9.45	10.6	1.12							
130	9.45	11.6	1.23	20.6	18.4	.86	7	G		F
131	9.43	12.8	1.36	15.8	16.8	.97	9	E	E	E
132	9.36	9.6	1.03	18.8	17.6	.88	9	G	G	G
133	9.33	10.6	1.14	16.8	20.8	.90	8	G	G	F
134	9.3	11.4	1.13	17.8	14.6	1.08	6	G	G	E
135	9.33	11.4	1.22	14.2	16.4	1.11	8	F	F	G
136	9.27	10.2	1.10	21.4	21.2	.72	7	F	G	G
137	9.25	9.5	1.03	20.4	18.2	.83	9	P	F	G
138	9.2	12.5	1.36	16.4	16.8	.94	10	G	G	E
139	9.18	9.6	1.05					VP	F	G
140	9.17	9.7	1.06	16.8	16.2	.94	4	F	P	F
141	9.16	11.8	1.29	22.8	20.4	.74	6	G	G	E
142	9.12	9.8	1.07	17.6	17.8	.89	8	F	F	G
143	9.1	10.5	1.15	22.2	19.2	.82	9	VP	P	G
144	9.09	11.8	1.30	15.6	18.2	1.01	8	E	G	G
145	9.07	11.3	1.24	19.6	20.4	.80	10	G	E	G
146	9.06	10.2	1.14	17.8	17.4	.90	10	G	E	E
147	9.04	11.2	1.24					G	G	G
148	9.04	10.1	1.12	21.0	18.8	.82	8	F	F	G
149	9.01	10.0	1.11	15.4	19.2	1.01	7	G	G	G

	Chr. Age	B.S. Age	B.S.Q.	F.B. Time Rh.	Lh.	F.B.Q.	Knox Cube	Teacher's Marks Ge	Ar	Lan
150	9.90	9.9	1.00	20.0	18.2	.85	9	P	F	F
151	8.95	10.9	1.22	15.6	15.8	1.02	8	G	G	F
152	8.93	10.7	1.20	19.6	16.2	.95	8	P	P	F
153	8.93	11.6	1.30	21.0	18.4	.86	7	G	VP	F
154	8.92	11.4	1.28					G	F	E
155	8.86	9.9	1.12	15.2	16.6	1.06	10	F	F	E
156	8.85	10.4	1.18	16.4	15.8	.99	9	E	G	E
157	8.84	9.8	1.11	18.6	16.6	.95	8	F	P	F
158	8.7	11.2	1.29	19.6	21.0	.81	7	G	G	F
159	8.66	11.3	1.35	15.6	15.6	1.31	8	E	E	E
160	8.66	11.0	1.27	19.2	17.3	.93	8	G	G	E
161	8.59	11.1	1.28						G	G
162	8.57	9.6	1.12	16.6	16.8	.87	8	G	G	G
163	8.56	8.4	.98	21.8	23.8	.74	5	F	F	F
164	7.95	12.4	1.56	19.2	16.0	1.08	10	G	E	E
165	7.92	8.8	1.11						G	
166	7.91	10.1	1.28	20.2	19.0	.83	8	G	F	F